Sixteenth Year of Publication

Industrial FINISHING

Reg. U. S. Pat. Office

Published Monthly in the Interest of Modern Production Finishing

Vol. XVI, No. 11 SEPTEMBER, 1940 $2.00 a Year

Contents of This Issue

Letters from Readers of Industrial Finishing 4
Putting a Smooth Luster Finish on Iron Castings 12
Improvements We Made to Facilitate Production 16
The Cleaning and Spray Finishing of Metal Parts 20
Processing and Finishing Refrigerator Cabinets—Part III 26
Two-Tone Auto Painting 30
Facts About Wood Stains 34
New Materials, Supplies, Equipment 46
Questions; Answers 54
Editorial 72

Smothers Fire Chemically 25
A Case of Improper Metal Cleaning 25
Plywood Glues, Resins, Finishes 29
Sherwin-Williams to Enlarge Plant 29
Third of a Century of Service 32
Maintenance Painting Handbook of 128 Pages Offered Free 43
Despatch Oven Co. Elects Officers 44
New Industrial Oven Book 52
Cleaning, Painting Over Down-Draft Grilles 66
Sterling Announces New Name and New Address 70
Drying Lamp Information 71

"Classified Advertising" Section 78
Index to Advertisers 79

Published by
Practical Publications, Inc., 222 E. Ohio St., Indianapolis, Ind.

Eastern Representative: C. A. Larson, 254 West 31st St., New York City; Phone Penna. 6-9049

Letters from Readers

OF INDUSTRIAL FINISHING

These letters (and many others) were answered recently by the editorial department, but are published here to reveal certain interesting trends of desire and activity in the industry, and to encourage additional inquiries, comments and suggestions. Further information about any of them can be obtained by writing this office.—Editor.

Offers "Fish Scale" Paint

In your issue of August 1940, page 6, "Fish Scale" paint for airplanes, I feel confident that I can supply the product described. You can forward my name to the subscriber who is seeking the information.—L. A. T.

Rubbing Materials

Please advise where we may obtain items named in the formula in your article, "Rubbing Formula for Lacquered Surfaces", page 32, May, 1939 issue.—Craig Novelty Co.

Information supplied.—ED.

Acid-Dip Finishes for Brass

May we ask if you can give us the names of suppliers of matter concerning acid-dip finishes on brass?—C. A. Co. (Metal and Celuloid Dresser Sets)

Hardware Masks

We would like to know of a practical method of covering polished chromium door hardware on wood cabinets, so that the cabinets can be undercoated and enameled with the doors and hinges on and the hardware easily removed after the painting operation.

Is there a liquid skin preparation similar to "new skin" that can be sprayed on the hardware, or preferably dipped, and easily removed?—X. Cabt. Co.

You might try masking paste, masking tape, or one of the several "liquid rubber" compounds, such as "Kelsanite", for example. Some workmen prefer one kind of mask; others prefer another. Names of manufacturers are being sent you in a letter.—ED.

Solvent Recovery

On page 73, of the May, 1940 issue of I. F. is an article concerning the recovery of volatile solvents. We ask you to please give us the name of the concern that manufactures equipment for carrying out this operation.—M. O. H.

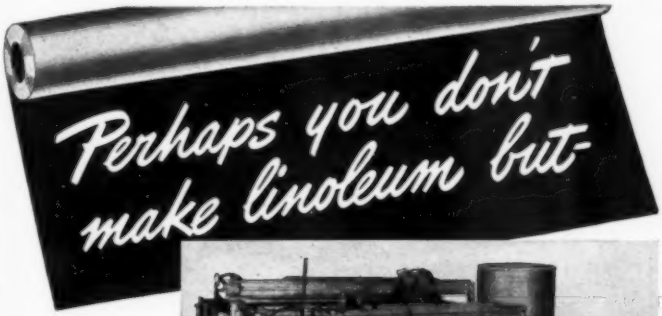
Names supplied.—ED.

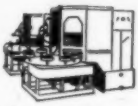
Will you please send me the name of the solvent recovery firm which, I believe, is located in Hammond, Ind.? They have advertised in your magazine in the past. Also, please send this information to .....—A. A.

It's Hammond Chemical Service, 241 Brunswick St., Hammond, Ind.—ED.

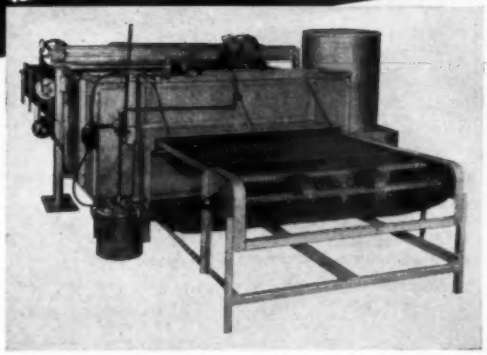
Whirl Enamelers

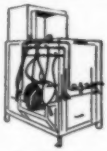
In a recent issue of your magazine there was an ad. on "Whirl Finishers." This ad. appeared about six months ago. We are interested in receiving additional information on these finishers and will appreciate





Heavy Duty Rotary





Pipe Coating

. . . Coating Automatically 480 Square Feet a Minute May Give You an Idea!

• This manufacturer sprays, dries and cools a wax emulsion on linoleum at a rate of 28,800 square feet an hour—with a DeVilbiss Automatic Machine.

The DeVilbiss line of automatic spray equipment includes machines of standard types which can be adapted to almost every finishing need. They perform such jobs as painting 200 feet of pipe a minute; applying 3 coats of latex and silicate of soda to 1200 pads each hour; finishing 3500 electric fan parts hourly.

WHAT'S YOUR PROBLEM? A DeVilbiss Spray Specialist can show you a profitable solution. If automatic spraying is the answer, it is more than likely a standard DeVilbiss machine can be adapted to your job. If your product requires hand finishing, at higher speed, the answer is still DeVilbiss. Call the DeVilbiss man, today.

THE DEVILBISS COMPANY • TOLEDO, OHIO

Canadian Plant: WINDSOR, ONTARIO

DE VILBISS SPRAY SYSTEMS

FORM - A - ROC

We offer to all industries equipped for baking finishes this highly perfected, heat-converting, synthetic enamel.

FORM - A - ROC

We have combined to an optimum degree the necessary qualities of tremendous hardness, great adhesion, smooth lustrous gloss, and freedom from haze, discoloration and wrinkling.

FORM - A - ROC

Baking schedule is of great flexibility, permitting from 5 - 50 minutes at 250 - 375° F.

FORM - A - ROC

No matter which of the present worthy finishes of this type you may be using or planning to use we sincerely recommend that you investigate

FORM - A - ROC

MADE BY

THE VARNISH PRODUCTS CO.

5288 Harvard Avenue

CLEVELAND, O.

knowing where they are manufactured.—Electric Appliance Co.

Two concerns advertised machines of this type; we are sending you their names and addresses.—ED.

Reflectorizing Paint

We have a contract with the New York State Department of Highways to pave the Maywood-Babylon Road in Suffolk County. Included in the contract is the placing of 20,000 linear feet of pre-cast concrete curb, which is to be painted with a reflectorizing paint of a quality approved by the Department.

Through the courtesy of E. I. du-Pont deNemours and Co., who we contacted in this regard, it was suggested that you might be able to furnish us with information regarding the manufacturer of a paint of this type.

It would be greatly appreciated if you will consult your records along this line and advise us of the result.

A reply to our field office, P. O. Box 905, Babylon, N. Y. will facilitate matters.—J. J. M. Contracting Corp.

We have submitted the names of several manufacturers of luminous paints, but would like to hear from firms who believe they have something that will meet the requirements.—ED.

Want "Sealacell"

We would appreciate your sending us a copy of April, 1940 issue of INDUSTRIAL FINISHING. We are interested in an article on "Sealacell" clear wood sealer which, we understand, appears on page 70.—Canadian Industries, Ltd.

Dipping Machines

We would like to get the names of manufacturers of automatic dipping machines.—G. N. Co.

Antiquating Glass

We are endeavoring to locate a material which we can successfully use for antiquating glass. Naturally, we want a material that is not very combustible.

The glass parts in question have small ridges and indentations, and we wish to apply this material so that when we wipe off the surface,

Two NEW Products

#1 → A brand new PENETRATING SEALER which lays the "finish-foundation" way down deep in the wood and holds top coats firmly. No chipping, checking or scratching. The name is —

4107 PENETRATING SEALER.

#2 → A product designed primarily for the popular new **light finishes.** This item is also "penetrating" and it is extremely light in color. We call it —

4100 BLEACHING SEALER.

Both above items offered with **guarantee** of satisfaction. Order five gallons at drum price.

V. J. DOLAN & CO., INC.

"Unquestionable Quality" Industrial Finishes

1838 NORTH LARAMIE AVENUE **CHICAGO, ILLINOIS**

to METAL GOODS manufacturers

HOSPITAL EQUIPMENT, WASHING MACHINES, REFRIGERATORS, KITCHEN CABINETS, ETC.

here's PER-FEX-ION SYN-AMEL Series 600

Keen competition in all Metal Case Goods Lines demand superior finishes. Thresher's Per-Fex-Ion Syn-Amel, Series 600 gives you . . . . .

1. Unusual **Marproofness** and **Resistance** to water, soap, stain and grease.
2. Greater **Color Retention** and exceptional **Hiding Power.**
3. **Ease of Application.** Air drying or Baking with flexibility in schedule.
4. A new high in **Added Sales Appeal** for your product.

Our Technical Engineers are at your service to demonstrate the superior qualities of Perfexion Synamel, Series 600.

THRESHER'S — High Standard Varnishes — MADE GOOD SINCE 1859

THRESHER VARNISH COMPANY

DAYTON, OHIO

Paint — Varnish — Enamel — Lacquer

A PERFECT COMBINATION for wood finishing

✓ UNITED A-607 SEALER and
● W. F. 4895 WOOD LACQUER

- ✓ One coat
- ✓ Penetrates
- ✓ Sands easily
- ✓ Perfect bond
- ● Withstands extreme temperature change
- ● Various lusters from gloss to flat

A perfect combination producing a beautiful, glass hard finish.

Further information and working samples will be gladly furnished on request.

LACQUERS
THINNERS
ENAMELS
METALIZED FINISHES
SYNTHETICS

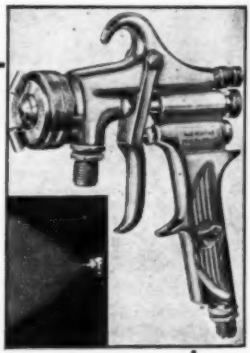
UNITED LACQUER MFG. CORP.
General Offices and Factory: Linden, New Jersey

* *MILBURN FAMOUS "HOLLOW AIR" ATOMIZATION*

SUPERIOR FOR FINER FINISHES

The "Hollow Air" atomizes spraying materials with a minuteness heretofore not attained. Results in higher efficiency, speed, wider and wetter spray.

Construction has unique features — light, forged body of strongest aluminum alloy — stainless steel parts — removable threaded head and . . . . . **exclusive "Hollow Air" Atomization.**



Write for literature

The ALEXANDER **MILBURN** *Company*

Patents:
No. 2,082,060; 2,082,061
2,126,888; 2,126,889

1402 W. BALTIMORE ST.
BALTIMORE, MARYLAND

it will remain in the spaces between ridges and in the indentations.

We should like to get a material that will dry readily and will not tend to crumble or rub off at a future date.

Do you know where we can locate such a material, or do you know of a process with which we can apply ordinary materials? Inasmuch as we are about to go into production, your prompt advice will be appreciated.—C. T. Co. (Lamp Mfrs.).

We have submitted names of concerns who, we believe, can supply what is wanted.—Ed.

Crackle Lacquer; Morocco

One of our foreign respresentatives advises us that a firm in Rio de Janerio, Brazil, S. A., is interested in securing a good grade of crackle lacquer for use on high-voltage transformers. They want this in a grey color and particularly want a lacquer that will hold its color. We would appreciate your giving us the names of firms making this type of lacquer.

This customer has also seen some radios with a lacquer finish that gives the appearance of old leather. Can you tell us who makes a finishing material like this?

Our representative has also suggested that you may wish to send a copy of INDUSTRIAL FINISHING to this company in S. A., as he feels that this publication will be of interest to them.—S. T. Co.

Venetian Blind Coater

Would it be possible to send us information about roller coating machines for venetian blind slats? We understand that there is a small machine particularly adapted for this purpose.—V. R. Co. (Venetian Blinds).

Striping Tools

A friend of ours in the industry has mentioned that we might find a tool we are looking for, by directing our inquiry to you.

We are picture molding manufacturers, and understand that there is a new tool developed, something on the style of a fountain pen, to paint solid colored lines in picture moldings. He said that in a recent publication from you, there was something illustrated that is the solution to our problems. May we have

IT'S TIME NOW

to think of your new items for

Thanksgiving

AND

Christmas

Dress them up with the proper shades of

RAYON FLOCKS

IN HOLIDAY COLORS

Impart that velvety soft, colorful finish which attracts buyer attention and increases your sales and profits.

Write for sample color card and information

CLAREMONT WASTE MFG. CO.

Claremont, N. H.

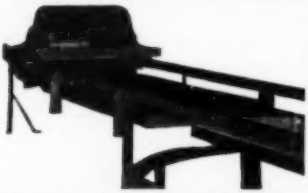
The country's leading makers

MEMO.

TO those engaged on Government orders we offer specification material PLUS Randolph dependability and service.

Dopes—Thinners
Lacquers—Synthetics

RANDOLPH
FINISHING PRODUCTS CO.
Carlstadt New Jersey



Power Graining Machine

1. Cycle time 25 seconds.
2. Will cover a surface up to 31" x 80".
3. Automatic roll cleaner.
4. Cuts production costs.

GRAINING PLATE DIVISION
American Electrotype Company
104 E. MASON ST. • MILWAUKEE, WIS.

your assistance in obtaining full particulars on this tool?—L. C. W.

Kindly mail, addressed personally to the writer, available names of manufacturers of multiple striping equipment and tools to produce multiple stripes in one operation.—J. G., P. A.

We would appreciate your advising us of the manufacturer of automatic or semi-automatic striping equipment.—M. P. Co. (Furniture Novelties).

Information given.—ED.

"Woodlife" Found

Our attention has been brought to a reader's letter appearing in the July number of INDUSTRIAL FINISHING (page 4), in which a request was made for information concerning "Woodlife," as a preservative for pine and cypress. Since our product "Woodlife" is used from coast to coast for this purpose, and is probably the most extensively used water-repellent and toxic-preservative for window sash in the country, we feel that the reader had us in mind when he made his request. Accordingly, we are taking the liberty of sending you some of our literature, and we hope you will see that it reaches your reader, the "A. J. Co." — Protection Products Mfg. Co.

EDITOR'S NOTE:—According to the company's circular:

"Woodlife is a combination product having both water repellency and toxicity value. The toxicant, 5% by weight, is in solution in the water repellent. A proper treatment of Woodlife Toxic Water Repellent gives a complete protective treatment to millwork, guarding against moisture or water absorption, as well as preventing decay and stain. Thus the wood has protection against swelling, shrinking, warping and twisting; likewise, splitting and end checking. Grain raising is reduced to a negligible point, generally prevented.

"This treatment is a definite aid to paint and other finishes. The 'Woodlife' treatment is much more effective than back painting or priming, and is much less costly; especially advantageous for trim. The one exception to finishes is lacquer, in which case apply a sealer coat of shellac before finishing."

As a subscriber to your valuable publication for the past several years, we

(Continued on page 77)

87% IS SEEING

The First Impression Counts!

Let that first impression be created in your favor by the use of Stille-Young Products.

STILLE-YOUNG

LACQUERS
SEALERS
STAINS
ENAMELS
FILLERS

S-Y

Manufacturers • CHICAGO

From *quantity production* to *custom built* there is a Stille-Young product for every finishing need.

Send your inquiry to

THE STILLE-YOUNG CORP.
Chicago

Putting a Smooth Luster

THE finishing of rough castings—to make their surfaces present a smooth attractive appearance—is one of the problems that some paint shop foremen must know how to solve. Often the rough castings, which may form the framework for an intricate piece of machinery or the exterior surface of any metal product, require a finish that will be in harmony with the delicate mechanical parts installed within the unit. Gears, cams, connecting rods and other mechanical parts that go into the make-up of a machine, are often highly polished and sometimes nickel-palted.

The casting may be large or small, depending on the use for which is it intended. If it is the framework or housing for a machine, with openings for the installation of parts, or if it is the outside shell for smaller articles, with surfaces smoothly streamlined and attractively colored, then the foreman has to know what procedure to follow to obtain such a finish.

Perhaps a nice black lacquer job is wanted, to contrast beautifully with the polished and nickel-plated parts. If so, all traces of roughness in the original casting must be removed or filled and painted over with a smooth lustrous finish. Materials required for this work include iron filler, primer, putty glaze, a knifing filler, sanding surfacer and the black finishing lacquer.

The tools needed will include putty knives with blades 1-in. and 2-in. wide, a knife 4½-in. wide for applying the filler, a scraper to use in connection with the filler knife, a spraying outfit, a round brush, and a heavy piece of leather for working on the curved parts of the casting—if any are present.

Cleaning; Prime-Coating

First, the casting must be thoroughly cleaned, making sure that all grease and dirt are removed.

Finish on Iron Castings

BY
W. K. PERDUE

If sand holes appear in the casting, they too must be cleaned. Occasionally sand holes of considerable size are present; these must be cleaned out and filled up level with the surrounding surface. To do this, we use an "iron filler." The iron filler I have in mind is a product composed of iron filings that have been prepared with an adhesive which has dried onto the particles and is soluble in water. To use this preparation, all that is necessary is to mix enough of the filings with water so as to form a putty-like substance that can be pressed into the cavity. It dries and becomes hard very readily. It can be smoothed out with a putty knife when it is applied.

Next comes the priming—and for this work it is important to use a primer of excellent quality—one having a good "tooth" to which putty will adhere. It is important that the primer be just right in every respect. If too much gloss is present, the operator will have trouble in getting the putty to stick as he applies it with the knife.

Puttying; Drying; Sanding

The puttying operation, which is the next step after the priming, requires the complete covering of the casting. This part of the work is intended to build up the irregularities of the surface, filling in all of the deep places that are present. The best putty is a special product made for this kind of work. It has a lead base, but should not be confused with the common window glazier's put-

ty. To apply it, the 1-in. and 2-in. putty knives are used. The workman builds up depressions until the surface approaches the streamlined smoothness that is desired in the finished article.

After the puttied surface has dried overnight it should be sanded with medium coarse abrasive paper to "grind off" any unevenness that shows up. This does not call for a thorough sanding, to make the surface real smooth. After this sanding, the knifing filler is applied. This filler is also a lead-base material. It has other ingredients such as Keystone filler or Reno filler, mixing varnish, etc., and is tinted with lamp black.

Knifing Filler Applied

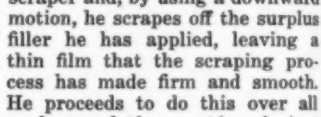
We use two colors of knifing filler; one is salmon colored and the other is grey. They are alike in formula except for the different tinting colors used. By alternating successive coats—first grey and then salmon—we have, in reality, guide coats that show us how far to go when rubbing later on.

Our knifing filler is thinned with turpentine to suitable working consistency, which is comparable with the spreading qualities of a white plaster. In fact, our workmen call it a plastering operation; it is applied in a manner somewhat similar to the method used by a house plasterer when he applies his white coat over the brown coat.

Our "painter-plasterer" does not use a hawk or trowel, but the tools he does use are manipulated pretty much in the same manner. He uses the 4½-in. knife to apply the filler, and a tool called a "scraper" on which he holds his supply of material, see accompanying drawings.

The filler is mixed in a metal box about 5-in. wide, by 12 or 14-in. long, by 3-in. deep. From this box the workman takes a knife full of filler and scrapes it off on the scraper. Then, as he holds the scraper in his left hand, he takes off small amounts with the 4½-in. knife and spreads it onto the surface which is being filled. He uses an up-and-down motion, which causes the filler to be forced off the knife and onto the surface by the angle at which he holds the knife.

After he has spread filler over one side of the casting, he cleans his knife over the edge of the scraper and, by using a downward motion, he scrapes off the surplus filler he has applied, leaving a thin film that the scraping process has made firm and smooth. He proceeds to do this over all surfaces of the casting being filled until the whole unit is covered. If there are curved surfaces, such as rounded corners, he



A supply of knifing filler is placed on the scraper blade, which is held in the left hand, then taken off in small batches on the knife and "knifed" onto the surface of the casting.

uses the leather (previously mentioned) to scrape with, bending it in his hand to conform with the rounded surface. Our workmen are so adept that they get a good job without using the leather.

A coat of this filler will dry sufficiently in half an hour, so

that a second coat can be applied. In applying the second coat, if he has started with the grey, the workman changes to the salmon color.

The workman proceeds with this filling operation until he has applied three or four coats, or until he has put on enough to obtain a reasonably smooth surface —a built-up surface showing no low places. It may mean that here and there more of the filler has to be left on because of slight depressions. When finally filled, the roughness of the casting will have disappeared completely.

Drying and Rubbing Filler

Now comes the bugbear of the finishing room. The work must be allowed to stand until what has thus far been applied, becomes thoroughly dry and hard. This may mean from three to six days, owing to the amount of putty and filler that have been put on. Don't try to hurry the job at this stage. Let it dry until you are certain that no trouble will occur in the next operation, which is the rubbing. Of course, this drying time can be reduced by force-drying the putty-filler coating, but care and good judgment must be exercised in this respect, especially if some parts of the surface have been heavily coated to build up low places in the rough castings.

The rubbing is done with brick pumicestone and water — either hand-rubbed or machine-rubbed. The chances are that hand rubbing will be the best, for if it is a job that requires this kind of a finish it is probable that the casting has surfaces that are broken up into different faces of small dimension, where a machine wouldn't function properly. Jobs of this kind are usually special. The rubbing is continued until the whole surface presents a smooth even contour, after which it is dried, sanded and carefully inspected for any place that may need touch-up puttying.

Sanding Surfacer; Enamel Finish

If no touching-up is necessary, then the surface is ready for the sanding surfacer, which must be a material that works satisfactorily under lacquer. Spray on a liberal even film over the entire surface; when dry, the job is ready for its final coating of lacquer (see supplementary notes near the end of the article).

As we stated at the beginning of this article, perhaps a black finish would be desirable; if so, probably any standard grade of lacquer enamel could be used. We, at the Diebold Safe & Lock Co., use the standard automobile grade of material.

Whatever lacquer enamel is used, the color is a matter of what the customer orders. Any color will present a fine looking appearance. Of course, the finisher doesn't have to confine himself to using a lacquer enamel. Synthetic enamel or any other type of finish can be applied with equally good results.

If the work has been done as outlined here, there will be no indication that the finish was applied over a rough casting. It will appear to have been applied over smoothly formed sheet metal—having a smoothness and luster comparable to the finish on any modern automobile. This class of work is the exception rather than the rule today, but it is given here for the benefit of any foreman finisher who is young in the business

(Continued on page 44)

Improvements We Made to

BY NORMAN H. VOIGT

MORE furniture manufacturers are becoming aware of the need for improvement in equipment, lighting, and efficient planning throughout their factories. Often the mill and cabinet room facilities have been modernized, while the finishing room has been allowed to remain unchanged.

This sequence of departmental improvements is quite logical, inasmuch as initial operations in production are naturally the most vital. However, we have now advanced to the era of fast machine production of furniture and have an apparent need for speedier finishing methods with no sacrifice in quality.

Critical consumers desire superbly finished merchandise at moderate prices. To satisfy these two vital requisites we must give proper attention to the requirements of the finishing department, as well as to the milling and assembling divisions. Short-sighted economy in this department will show its effect in a reduced demand for the product in no uncertain manner. Regardless of the substantial construction and excellent design which the furniture might have, eye appeal must be readily apparent in the finish to secure maximum sales.

How to Plan Improvements

The question now presents itself: How can we make these improvements without involving large expenditures? The answer is this: Study the problems of your particular department and carefully probe into the most minute operations, with the desire to "streamline" everything and thus eliminate all "bottle-neck" situations.

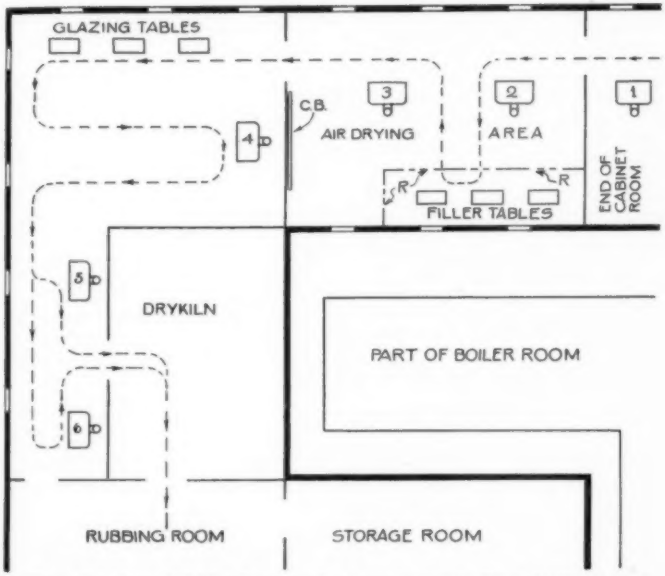
Let us consider the results and benefits derived from the renovation of a finishing room by a particular manufacturer of medium and high-grade bedroom furniture. Much the same result can be obtained in factories manufacturing other lines of case goods.

Improvement in Lighting

The concern I have in mind operated under difficult handicaps of poor natural lighting and obsolete planning. The equipment, as a whole, was adequate but poorly arranged. Remodeling was accomplished during a dull season, with small inconvenience to production. Plans of the department were carefully drawn. Scale details of spray booth equipment, benches and tables were made separately and thumb-tacked at various places on the large floor plan for careful study of routing and lighting conditions.

Due to an insufficient number of windows the problem of lighting was quite difficult—and since it was realized that daylight is most

to Facilitate Production



Floor plan of our finishing department, as now arranged. Spray booths face windows (formerly they were backed up to outside walls). The filler tables and glazing tables are mounted on air-lifts. Hanging reflector panels, RR, with fluorescent lights at lower edges, are positioned at one side and one end of the filler work area. Control board, CB, has been installed to show progress of work.

The spray booths are as follows: 1—Staining; 2—wash-coating; 3—wash-coating; 4—sealer and drawer coater; 5—lacquer; 6—varnish.

No. 1 spray booth is at the end of the cabinet room, thus relieving congestion that would exist if three spray booths were crowded into one room.

The wash-coating operations (before and after filling) on mahogany and walnut are performed in booths 2 and 3.

Skylights are located above the working areas in front of spray booths 1 and 4. We have no filler kiln; all work is dried overnight, hence a kiln is not essential.

essential to finishing operations, we considered every possible means of securing this form of light.

The spray booths had been originally placed with their back to the wall to promote more effective exhaust (a short exhaust line through the wall) but modern exhaust systems have ample

power to expel fumes through the roof. Our first move was to turn these spray booths to face the windows. This arrangement not only provided adequate light for spraying operations, but it also gave a light area for inspection and sanding operations near the

One of the reflector panels fitted with fluorescent lighting tubes at lower edge.

window. (A small outlet was provided at the base of each spray booth exhaust stack to permit easy cleaning of both the vertical and horizontal sections). Reference to the accompanying floor plan and the explanation under it, will reveal more clearly what changes we made, where we made them, and how they affected our production system.

In the filling department we had only two windows and they were partly obstructed by an adjacent building. This lighting problem we corrected by placing, around the filling area, fireproof panels (4-ft. wide) which we hinged to the ceiling. We painted

Schedule of Finishing Operations on Walnut and Mahogany

1—Staining
2—Wash-coating
3—Sanding
4—Filling
5—Wash-coating
6—Sanding (very light)
7—Glazing (brushed on)
8—Sealing and drawer coating
9—Standing
10—Lacquer or varnish coat
11—Rubbing

these panels white to reflect daylight, as well as the light from fluorescent tubes fastened to lower edges of the panels.

Utilization of all available light was further accomplished by installing air-lift filling tables in place of the ordinary benches formerly used. This change made it possible for the operator to turn his work to the light for filling inspection. At the touch of a convenient pedal he could elevate his work to proper height for detailed attention and readily

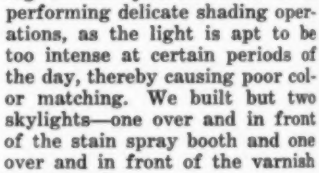
Our Finishing Schedule for Maple

1—Staining
2—Wash-coating
3—Sanding
4—Glazing (brushed on)
5—Sealing and drawer coating
6—Sanding
7—Varnish or lacquer coat
8—Rubbing

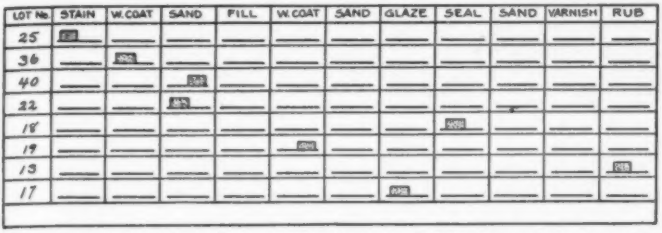
lower it to the floor for easy removal of filled cases to the drying area nearby.

Skylights are satisfactory for some operations, such as staining and drawer coating, but direct overhead light can be very confusing to the operator when he is performing delicate shading operations, as the light is apt to be too intense at certain periods of the day, thereby causing poor color matching. We built but two skylights—one over and in front of the stain spray booth and one over and in front of the varnish spray booth.

Research records of large industries have shown startling evidence of greatly increased productiveness and reduced fatique



The corner of each spray-booth turntable (30x48-in.) has an iron pin to anchor the leg of a full size bed end, set diagonally.



The control board is really a large blackboard with tilted-back pockets to receive production job cards or lot cards on which are listed all items included in a certain job or lot. Across the top of the board are listed the finishing operations; as the job moves forward from one operation to another, the card identifying it is moved by stages across the board from left to right. A glance at the position of cards on the control board reveals just how far along each job has progressed.

when advanced illumination methods are utilized. Fatique is insidious and the resultant loss of mental alertness is not readily noticeable to the worker. Eye strain affects the nervous system and this results in a physical letdown which is soon made apparent in poor workmanship.

Next we considered the spray equipment. We designed air-lift turntable tops that would accommodate all the pieces included in a bedroom suite—namely, chest, dresser, twin and full-size bed ends, vanity, dressing table, and small pieces.

The turntable tops are covered with galvanized sheet metal for easy cleaning. One corner is fitted with a steel pin or stud small enough in diameter to fit the caster hole in a bed post. This pin projects up above the table about 1¼-in. Bed ends to be sprayed are set diagonally across the table, which measures 30x48-in. This turntable top permits easy turning and provides ample length for beds, yet it is not too long to be cumbersome when chests and the small pieces are sprayed. It works satisfactorily.

Extra spraying racks were thus eliminated and valuable time was saved in making set-ups. This type of table, with the same size top, has also proved to be satisfactory for use in the filling department.

Two humidifying tubes served the filler and spray rooms, and are thermostatically regulated.

For complete traffic knowledge we constructed a control board. This is arranged to show the progress of all operations and is especially valuable in factories producing a variety of furniture. Cards of a different color for each lot are filed in the proper operation column on the board. Each card lists the lot number, items, and number of pieces. This system shows at a glance the progress of all orders and is a definite help to the foreman in controlling production.

Complete renovation is not always necessary, but the point is: Get to the root of your trouble. One change, whether it is in the lighting or equipment, may often make an advantageous difference in the cost and quality of your product now and in the future.

The Cleaning and Spray

BY MICHAEL FORCHIONE
Foreman Finisher, Mack Mfg. Co.

THE FIRST STEP in successful metal finishing is a thorough cleaning of the surfaces to be finished. When any finishing material is applied to an improperly cleaned surface there will be poor adhesion. In extreme cases, the finish can be wiped off with a rag or the palm of your hand after it has been air-dried or baked. In some cases the finishing material will have a tendency to crawl. Also, you may have a spotty looking finish; by this I mean the finish will be dull in some spots and glossy in others.

A few of the solvents commonly used for cleaning metal surfaces, in some paint shops, include lacquer thinners, alcohol, naphtha, gasoline and mineral spirits. However, I would not advise anyone to use them unless there is absolutely no chance of having a modern degreaser installed. My chief objection to the use of solvents for cleaning is that they are highly inflammable. Then, too, when a man works with these solvents for some time he develops sore hands.

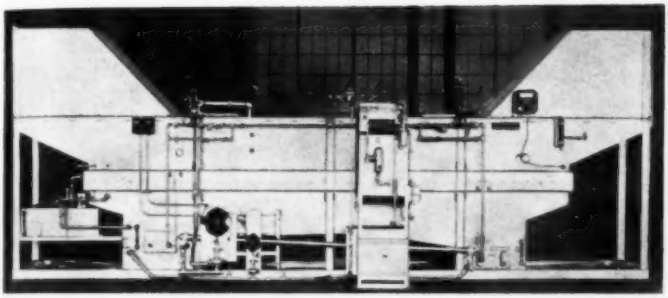
A Degreaser Is Desirable for Cleaning

A degreaser is not too expensive and, because of its increased production and more efficient performance, it will soon pay for itself in a plant having a reasonable volume of output. A few of the several different types of degreasers now on the market include the vapor type, immersion-type and vapor-spray-vapor type. In these cleaning machines the fire hazard is completely eliminated. They can handle a much greater output with less man power, thus increasing production and cutting costs.

The degreasing machine requires a special chemical with a very low boiling point. When this solvent is brought to the boiling point, this chemical releases a heavy vapor. This vapor is usually kept at a certain level in the tank by the use of a water-jacket condenser or cold-water coil which prevents the vapor from overflowing the tank.

With simple vapor cleaning, the article to be cleaned is lowered into the vapor and allowed to stay there for a few minutes. When it is raised from the vapor the piece should be suspended just above the vapor layer for a few seconds, so that any of the vapor brought up with the article will quickly condense and drain back into the tank. Care should be taken to have the cleaning room properly ventilated.

Finishing of Metal Parts



A vapor-spray-vapor degreaser with monorail conveyor. A continuous solvent still appears near the middle of machine. Photo, courtesy of Detroit Rex Products Co.

In the immersion-type of degreaser the pieces to be cleaned are completely immersed in a hot solution, then into a rinse of clean solvent, and finally into the vapors. When taken out, the pieces are completely dry.

In the spray-type of degreaser, the warm solvent is pressure sprayed directly onto the work.

Oil, Grease and Rust Must Be Removed

Regardless of how your metal parts or assembled articles are cleaned, be sure that all traces of oil and grease are forced out of all crevices and breaks in the metal. Solvent degreasing will accomplish this result. However, if you have used some other method of cleaning and are not sure that all traces of oil and grease are eliminated from the metal surfaces, I recommend that you force it out by baking the metal in an oven for at least half an hour or longer.

Any of these degreasers should be cleaned periodically to remove sludge which settles to the bottoms of tanks. The solvent can be reclaimed by distillation (either within the degreaser or a separate solvent still) and used again.

Be sure that the surfaces of your product are as clean as possible. Otherwise you may run into trouble later. Even finger marks may cause trouble. Before prime coating, I suggest that the surfaces be wiped off or tack-ragged; this will remove all dust and lint that may have collected.

I take it for granted that in the cleaning process all rust and scale has been removed. For cutting off heavy scale I suggest using a disc grinder. Light rust can be removed with sandpaper. There are chemicals on the market which will dissolve the rust and also

act as an inhibitor, thus giving more protection. I would recommend the chemical method of rust removal, as this material works rapidly and thoroughly. By this method you are sure to get rid of all the rust. (If acid-type chemicals are used they must be neutralized before degreasing.)

Filler—Its Application, Drying and Sanding

After cleaning the metal you will probably find it necessary or desirable to use a filler to cover spot welds, dinges, rough metal, etc. I suggest that you avoid the use of a lacquer-type filler on base metal, unless it is so specified by the manufacturer of the material. Most materials of this type do not adhere satisfactorily or permanently to the base metal. You can get air-dry fillers that will air-dry in a few hours, and which can be knifed on easily. I suggest using a 4-in. knife for applying the filler.

Wherever possible I would use a baking-type of filler, as this is generally more durable. If you have no baking facilities, make sure that the filler is completely dry before you sand it. Be sure to feather-edge the patches of filler by careful skillful sanding. I advise using No. 240 sandpaper for this work.

This filling and sanding will give you a smooth foundation for your finish. Otherwise you will have a patchy looking appearance on your finished product. It is also advisable to spot prime the filler spots before applying an overall prime coat. This insures the sealing-in of the filler.

Here is a cut-away view of modern hand-operated, 3-dip, immersion type degreaser. Photo, courtesy Detroit Rex Products Co.

Prime Coating

Now you are ready for the prime coat. Too many finishers take the wrong attitude in reference to primers. I have often heard, "Oh, that's all right, it's only the first coat." It is always well to remember that if your first coat fails, your finish coat is bound to fail also.

Several types of metal primers are on the market; for example, synthetic, oil-type and pyroxylin. Some are strictly primers; others are a combination primer and surfacer. My suggestion is that you try them out and then use the one that is best suited for your own particular work. Be sure the primer you select fits in with your drying and production schedule.

Priming material should have excellent adhesion to the metal; also elasticity, durability, and flowing qualities. Another primer requirement is ease of sanding.

The prime coat should cover the surface completely and it should be of such character that it can be sanded smooth and present a hard surface. The material should be properly thinned and applied. It is always advisable to follow the material manufacturer's recommendation for thinners.

I will not attempt to tell you how much to reduce your prime coat, as these materials reduce anywhere from 10% to 100%.

Problem of Spraying

For operating the spray gun, choose a man who is particular with his work. All too often this job is left to a slipshod type of worker who slights his work; this automatically harms the finish. The sprayer should be instructed to strain his material before using it, as this contributes to smoother finishing. The surfaces to be sprayed should be wiped clean to remove any dust or dirt that may have settled on the work after it was chemically cleaned. In spraying, apply an even wet coat.

Ordinarily, the spray gun should be held not more than 8 to 10-in. away from the article that is being sprayed. The sprayer should carry his arm stroke completely across the piece he is spraying. If this is not done the work will be dry in spots and flooded in others. The sprayer should also be instructed to spray a wet coat at all times, regardless of the type of material being used. If this is not done, you will have a carryover of mist which will give your work a dusty, misty, rough appearance.

Sanding the Prime Coat

If your work is to be air-dried, be sure to allow enough time for sanding; otherwise you will have sand-scratches showing through the finish. If your material is baked, you are ready for sanding within one or one and a half hours. You may use any sandpaper from No. 240 to No. 320. The abrasive paper to use will depend upon the production speed you want, the number of coats you are going to spray, and the hiding qualities of your finishing material. Avoid using an abrasive that will leave a scratchy appearance. I have found that in most cases the No. 240 abrasive paper has ample cutting qualities and most finishes will smooth out very nicely over a prime coat sanded with abrasive paper of this size grit. For a really smooth finish I suggest using the No. 320 wet-or-dry sandapaper and water sanding. This operation takes slightly longer, but you will find the ultimate finish will show the result of the extra time spent on the sanding.

After sanding, the workmen should tack rag the face or spraying surface of the piece to be painted. Tack rags can be either bought or made. The tack rag picks up any lint, lose dirt or dust that is left on the surface.

Finish Coating Synthetics

You are now ready to apply the finish coat. Personally I favor the use of synthetic enamels. I like them because of their higher solid content and greater hiding power. While synthetics can be obtained in both air-dry and baking types, I like the baked finish. Here you have the choice of baking the finish at a high temperature (375° F.) for only a few minutes or baking at lower temperatures for from one to one and one half hours.

Synthetics do not need a prime coat. In case the fabricated steel needs to be filled, the metal will not have to be spot primed in order to seal the filler. Baked synthetic enamel is noted for its remarkable weather resistance. The synthetic finishes with which

I am familiar will set up dust free in a few minutes, thus insuring a clean finish.

Room Temperature; Spraying Pressure

Synthetics should be sprayed at a room temperature of not less than 70° to 75°F. Also, the finish should never be applied to very cold metal, as synthetics have a tendency to "orange peel" when sprayed on a cold surface. I have found that a minimum of 60-lbs. and a maximum of 80-lbs. air pressure are best suited for spraying ordinary synthetics. (Some of the leading spray equipment manufacturers recommend 60 to 70-lbs. pressure, and state that this is the range generally used. They also point out that, "air-pressure readings should be at the air inlet to spray gun."—EDITOR.) If you use less than 60-lbs. pressure you will find plenty of "orange peel" effects on the work. The material doesn't flow out properly. Also, you will have a heavy mist which will give your finish a flecked appearance.

On the other hand, if you use more than 80-lbs. pressure you will be wasting material and not getting enough on your product. Chances are that the spray would dry, necessitating another spray coat. When a pressure tank is used, I have found that a pressure of 12 to 15-lbs. in the tank is sufficient, accompanied by a 70 to 80-lbs. pressure at the nozzle of the spray gun.

Viscosity of Material; Spraying Technique; Cleanliness

In many cases the manufacturer of your material can give you the proper viscosity reading for spraying. If not, I suggest that you test the material at different readings until you find what is best suited for your own particular line of work; then hold it there for a uniform finish.

Always spray synthetics in a full wet coat. Otherwise your work will be dry and streaky looking.

These instructions, with a little variation, will hold true for spraying long-oil enamels also. The sprayer should always spray with an even stroke, spraying completely across the article on which he is working. The gun should never be held more than 10-in. from the work. The regulation of the gun will depend on the sprayer, the type of material used, the

Test the viscosity of your material.

viscosity of the material, and the pressure in the tank.

There is some question among spray operators as to whether to use the spray gun wide open. A leading manufacturer of spray equipment says: "We always recommend working with the spray gun wide open. Have spray gun equipped with proper nozzle and air cap. Then control fluid flow by fluid pressure on tank. By keeping fluid adjustment on spray gun open, the trigger pull-back will be easier and the operator's muscles over his trigger finger will not become sore. Another thing to remember is that in many cases the finish of your product reflects the condition of your paint shop. If you have an unclean shop it is almost useless to expect clean work. It pays to keep the paint room clean, not only for the sake of producing a better finish, although that is ample reason, but as a safety precaution against the possibility of fire.

(To be continued)

Smothers Fire Chemically

IN YEARS past, water-soaked blankets were commonly used for smothering fire and protecting adjacent property from ignition. Today, fire extinguishers are available which employ the same principle, with marked improvements in application. Operation of the extinguisher embodies the use of a foam or froth which not only blankets solid substances, but also floats on flammable liquids. Flexible and fire-resistive, it excludes air, smothers fire and stands guard against re-ignition—all very important.

It offers positive extinguishment of fires in flammable liquids, oil, naphtha, tar, wax, grease, lacquer and flammable solvents—and is also effective on wood, paper and textile fires. Modern extinguishers employing this principle are extensively used for the protection of factories, homes and garages.

When inverted, one type and size of extinguisher discharges approximately 22 gallons of foam —more than ten times the volume of its liquid contents. Ejected in a 30 to 40-ft. stream, this foam is free-flowing, rapid in coverage, and speedy in extinguishing action.—P. M. C.

A Case of Improper Metal Cleaning

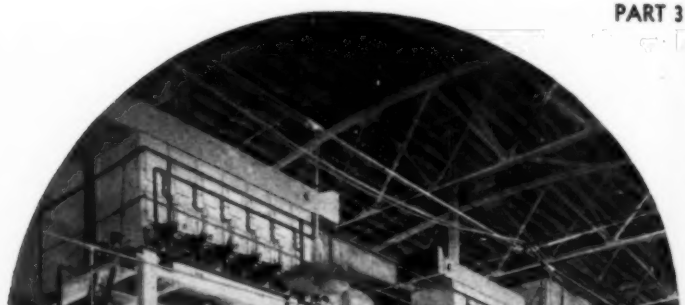
A MACHINERY manufacturer received an order for a number of streamlined guards. The curved parts of these guards were formed by spinning the sheet metal on a lathe. Before painting, the metal surfaces were sanded with abrasive paper and washed in naphtha.

The paint did not adhere to the spun metal areas, but peeled off in large flakes. Examination of the surfaces and a little experimentation disclosed the fact that by applying hot water and rubbing the surface, a soapy lather could be worked up.

Here is what had happened: When the spinners formed these parts they applied laundry soap to the turning stick to serve as a lubricant. The naphtha wash did not remove the traces of soap. A cleaning solution soluble in water was substituted for the naphtha and the trouble was remedied.

Processing and Finishing

PART 3



Ovens for baking synthetic finish—fitted with indirectly-fired natural-gas heaters.

THE PRIME-COATED parts are generally moved by conveyor into the baking oven. With the type of materials ordinarily used for refrigerators, oven-temperature control is important. The baking curve is calculated on the basis of temperature and time. If the prime coat specifications call for 300°F. for 60 minutes, then a heat of as nearly as possible to 300°F. should be maintained throughout the oven. It is difficult to explain all

Refrigerator Cabinets

BY C. O. JUDD
Chief Chemist

the trouble that may arise due to baking a finish at uneven temperatures. The more uniformly the oven temperature is controlled, the more you can rely upon getting the best quality of finish from your finishing materials. A high temperature oven clock with a smoked chart is the instrument to indicate what temperatures prevail at all points in the oven.

Sanding Between Coats

While every effort must be made to avoid the presence of dirt, dust or lint of any kind, if such foreign matter does appear occasionally in the prime coat, it may be removed by careful sanding. This sanding must be done after the prime coat is baked and before the finish coat is applied. Sanding out objection places may be done with No. 2/0 or 3/0 abrasive paper. After sanding, the surface should be tack-ragged before the finish coat is applied.

It is important to keep the prime coat clean. Bare-hand contact and perspiration smudges on the prime coat will definitely cause failures in the finish coat. Many little things can happen at this stage that will cause considerable grief. You will have to search untiringly to eliminate objectionable appearances that will show through the finish coat.

At one time I searched for a week trying to locate the cause of a small mark that showed through the finish coat from the prime coat. At last I discovered that it was caused by a gold ring on the finger of one of the girls in the tack-ragging division. After some investigation and research I found that such marking could be duplicated by any kind of gold jewelry that might come in contact with the prime coat.

Another time I had to delve into the case of a snake-track mark appearing on the cabinets. This trouble was caused by a workman using an air hose to blow off dirt from the conveyor chain. He allowed his corrugated rubber hose to touch the prime coated parts and the marking showed through the finish coat.

Final Coat of White Enamel

The application and baking of the finish coat is similar to what has already been described for the prime coat. A full wet coat of the white enamel is applied and the work is sent to the baking oven. Oven temperature control will play a vital part in the final color of your white finish—and in your bake-out, all rules must be strictly observed. Recently I read that there are more than 1100 different white paints being used. If the temperature of the finish oven is not controlled according

to the specifications of the finish enamel, you may bake-out with any one or several of these 1100 different colors in your white finish. Color control is one of the most chronic complaints in the paint department of a refrigerator factory, but it can be readily remedied with a well controlled oven.

Touch Up Work to Repair Damaged Areas

Rejects will be found coming out of practically any finish oven. They are chargeable to any one or more of a dozen reasons, such as dirt, mars, unpainted spots, blue edges (thin coated metal), sags, metal-finishing marks, etc. The inspection department controls the acceptance or rejection of the work. In my opinion, dirt that is flat and well painted, unless in a very conspicuous place, should not be considered sufficient cause for rejection; it should be let alone. Dirt that is painted but comes up to sharp points should be sanded off.

Other objectionable areas that are not too large and which are located on the body of the refrigerator, where condensation will not take place, may be made acceptable by using touch-up lacquer. Touch-up lacquer should be used with discretion, however, for in time, discoloration is almost sure to appear in places where it is used heavily. Touch-up spots will never give the equivalent test of the baked enamel. Regardless of where the spots may be located, the repair man should never sand the surface down to the bare metal and then build it up to full thickness with touch-up lacquer.

Consideration should be given in every way to the technique used in fine touch-up work. The sanding should be done sparingly, lightly and skillfully. It may be advisable to wet the surface slightly with touch-up thinner and then follow with a light coat of touch-up lacquer. Allow the lacquer to dry thoroughly and then polish the repaired spot.

The portable infra-red ray drying lamp has made a place for itself for quickly drying and baking touched-up areas on refrigerator cases. It is used successfully for this work both in production factories and custom refinisher shops.

Stripping; Refinishing

Any cases having a defective or damaged finish that cannot be repaired in the way just described will have to be returned for stripping or for another coverage of prime and finish coats to be applied directly over the rejected finish. When work has been rejected after the second complete finish coat is applied, it should be sent to the strip room.

Thoroughness in the supervision of the paint department and careful attention to all details will prevent the majority of rejections. However, regardless of all the precautions that may be taken in production, or the price paid for materials, a metal-finishing department that turns out a large volume of work will have need of facilities for stripping off rejected finish coatings.

The arrangement of a strip room, if a separate room is made available for this work, will depend upon the size, variety and volume of parts or products to be stripped. It will probably contain one strip tank and one or more rinse tanks. The stripping

solution is usually maintained at a temperature close to the boiling point. The pieces from which coatings are to be stripped are completely submerged.

Stripping of practically any kind of paint usually takes place within approximately ten minutes, with the exception of some baked japans and other asphalt formulations. After removal from the stripping tank, some surfaces may require a follow-up brushing or wiping to complete the stripping. This is followed by a thorough rinsing in clean hot water and a dry-off operation to prepare the metal surfaces for refinishing.

Tests for Durability, Color Retention, etc.

Several different brands of refrigerator whites now on the market will pass a number of severe tests with flying colors. A painted panel coated with phosphate, primer and finish coatings, to a total thickness of 2 mills (.002-in.) plus or minus three tenths of a mill (.00197 to .0023-in.) should stand a humidity test wherein the temperature is 110°F. and the humidity 100%, for at least 1,000 hours, and show no signs of blistering or any type of softening.

It should be satisfactory in appearance, adhesion and flexibility, with excellent color retention. It should be able to stand at least 150,000 double strokes on the rubbing machine with 5-lbs. pressure on a felt rubbing pad that is saturated with rancid butter, pork grease or ordinary shortening. It should not discolor appreciably when placed in a cabinet that is saturated with smoke coming from a hot smoking pan or shortening, for an indefinite time. After this panel has been in daylight and is 24 hours old, it should retain its color indefinitely while in practical use. It must be resistant to mild caustic solutions such as are found in ordinary soaps, and still retain its glossy finish.

Another test may be made by placing half of a test panel in a tank of water generally kept in the humidity room and maintained at a temperature of 110°F. The finish should not discolor, soften or water mark to a perceptible degree within 1000 hours. Panels should be exposed to the direct weather conditions without chalking to a great extent. Panels should not accept dirt that can not be cleaned off with ordinary soap and water. All of the tests just mentioned should be run on all paints that are used for refrigerator finishing, even though the same paint from the same supplier is used month after month. Any number of tests may be added to those just named, depending upon how thoroughly the laboratory cares to check the finish suppliers.

Plywood Glues, Resins, Finishes

Laux re-Plys is a bulletin published about plywoods—their uses and possibilities, by I. F. Laucks, Inc., "Technologists to the Plywood Industry," 314 Maritime Bldg., Seattle, Wash. The company manufactures glues, synthetic resins and wall finishes.

Sherwin-Williams to Enlarge Plant

Announcement has been made that the Sherwin-Williams Co., will expand its Chicago plant at 115th St. and Cottage Grove Ave. Present plans are for the immediate erection of one 300x100-ft. monitor-type single-story building for chemical manufacturing. About $500,000 will be spent in erecting and equipping this chemical manufacturing plant unit.

Two-Tone Auto Painting

BY W. H. ROHR

IN THE painting and repainting of automobiles, when the upper part of car is to be painted in a different color or shade from the hood and lower part, it is necessary to do considerable expert taping and masking. The accompanying illustrations show some of the steps in the final taping and masking job, followed by removal of the tape, wet sanding, rubbing with compound and hand polishing.

If the entire car is to be repainted in the 2-tone colors, all surfaces to be repainted must be thoroughly cleaned with wax remover to clean off all traces of wax or polish before masking begins. If the old finish has been rubbed through at places, these areas must be spot-primed. A gentle over-all sanding with fine abrasive paper is also desirable.

However, if only the top portion of the car is to be repainted, it is customary to do the masking first, then clean with wax remover and fine sandpaper. In this way, that part of the car to be left unpainted remains undisturbed by this preliminary cleaning and sanding.

With the surface properly prepared, the masking will include a careful masking of the windshield, windows, weather strips, hood, and the lower part of the car to prevent any overspray from striking same.

Refer now to the accompanying illustrations, which are identified by numbers.

PANEL NO. 1—The operator has part of his masking completed and is now "cutting in" the arc at the base of the front pillar. His tape will cross the horizontal taping along the side of the car. He is using thin narrow tape for "cutting in" this sharply curved line which extends over a curved surface. Tapes for this type of work are thin and as narrow as ¼ or ½-in. This thin narrow tape will be partly covered shortly afterward with wider tape to which is attached a wide sheet of masking paper, see panels 4 and 5.

PANEL NO. 2—Here the workman is taping the inside of the door, so the edges of the upper half of the door can be sprayed without any overspray striking the fabric lining, outside edge, or lower part of the door. It looks easy and it is easy for an experienced and skilled workman.

PANEL NO. 3—You see in this view not only a portion of the masked car but also the "apron taper" (right foreground) from which the workman pulls masking tape already attached to masking paper, the two joining as they unroll and leaving part of the width of the tape exposed, to be stuck to the surfaces that require masking. This apron taper is a real

labor saver, doing its work accurately, quickly, safely and automatically.

PANEL No. 4—Another view of the masked car. More masking paper will have to be taped over the top of the hood, or you will see evidence of overspray when the job is finished, see No. 5.

If the entire car has been repainted, then the masking can be stripped off after the top spray job has been completed and the finish has become dry, because

Photographs supplied through courtesy of the Minnesota Mining & Mfg. Co.

then the follow-up fine wet-sanding (No. 6), the spraying on of a mist-coat of thinner (if used), the rubbing with compound (No. 7) and the final polishing (No. 8) can be applied all over the car. Otherwise, the fine wet sanding and mist coating with thinner or lightly tinted thinner will be done before the masking is removed, in order to prevent overruns on that part of the original paint job which is to be left undisturbed.

PANEL NO. 5—The workman strips off the taped masks very carefully to avoid leaving a ragged edge at the joint. Some men draw the edge of a safety razor blade very lightly along these joints to cut part way through the paint film before stripping off the tape masks. However, this precaution isn't necessary when the newer thinner tapes are used —provided they are properly applied and pulled off. No thick color build-up occurs at the joint, as is so often the case when thicker tape is used.

Removal of the tape is made easier, safer and cleaner if the workman pulls it away and down from the joint, as illustrated in Panel No. 5. A skillful workman will peel off the tape without tearing it and without leaving any ragged edge at the line of color separation.

PANEL NO. 6—When the newly painted surfaces are thoroughly dry, a follow-up smoothing operation is in order if a "showroom finish" is desired—and if a sufficient thickness of paint film has been put on to permit it. If it is a synthetic finish job, two or three coats have been sprayed on; if it is a lacquer job, four or six thin coats have been applied to build up a durable finish.

The smoothing-up operation, illustrated here, can be a light over-all wet sanding with No. 500-A Wetordry abrasive paper. This gentle wet sanding cuts down any dirt nibs or orange peel effects that may be present.

Following this wet sanding the surfaces are wiped clean and usually sprayed with a mist coat of thinner (lacquer or synthetic, depending on what finish was used) to produce a nice glossy surface. In some cases (where the mist coat is sprayed on before the masking is removed) the thinner is slightly tinted with a little of the same color used on the paint job.

PANEL NO. 7—After wet sanding and mist coating, the surface is rubbed out with finishing compound.

PANEL NO. 8—The final work on a high-class job consists of applying the automobile polish uniformly and with plenty of skillful hand rubbing.

Third of a Century of Service

The Kirk & Blum Mfg. Co., Cincinnati, Ohio, is now celebrating its third of a century of business. The company now occupies a plant where two acres of floor space is equipped with modern machinery, much of it built for the particular requirements of Kirk & Blum. The organization numbers some 200 men, including a research and engineering staff, draftsmen, sheet metal artisans, and field erecting crews.

Kirk & Blum has specialized in the planning, fabrication, and erection of dust-control systems, ventilating and cooling systems and, since 1924, industrial drying and baking ovens. All Kirk & Blum installations are built to exact engineering standards and are representative of highest quality at minimum cost. Many of its designs are patented and exclusive.

The company has issued several booklets illustrating its products and installations in various lines of industry. These are available to industrial executives on request.

Photograph by courtesy of Johnson-Carper Furniture Company

The Furniture on This Conveyor Line is Receiving its Beauty Treatment of Synthetone

This new finish produces beautiful depth, smoothness, and luster. But eye appeal is only one of its unique features. The quality of SYNTHETONE insures a permanent finish highly resistant to cold-cracking, printing, marring, water, and liquor. SYNTHETONE is more economical than lacquer, having the building qualities, gloss, and coverage of varnish. Best of all, SYNTHETONE makes possible streamlined production. It cures in 90 minutes at 150° F. and may then be rubbed and polished. . . . Beauty, quality, economy, and speed are the features in which SYNTHETONE excels. Beautiful blue and silver labels are furnished free of charge to users of SYNTHETONE. Let the SYNTHETONE label boost your sales too.

SOUTHERN VARNISH CORPORATION

Roanoke, Virginia

REFLECT QUALITY SOUTHERN PRODUCTS

I am submitting a write-up on the subject of "Wood Stain Types". I tried to make this brief and still point out the important differences between the different types of stains. Of course, a great deal could be written upon each different type of stain; however, I think there is a need for more articles of a type that show the differences between different finishing methods. When a finisher understands what his materials are, and the differences between them, he will naturally avoid many pitfalls.—

Harry Daniels

Facts About Wood Stains

BY HARRY DANIELS

MANY otherwise well-informed finishers do not have a thorough understanding of the comparative qualities of different types of wood stains. It is important to know these differences, as the selection of a certain stain type for a job may be based upon one outstanding advantage, while several serious disadvantages (for the job at hand) may be overlooked.

The differences in stain types are best realized when shown in tabular form, for example, please refer to the tabulated information shown at the top of page 38, this issue. There are limitations to tabular forms, however, so that footnotes are necessary to give supplementary facts. Be sure to read the footnotes which follow and which are identified by numbers, the identical numbers appearing at various points in the tabulated data on page 38.

1—Coal-tar solvents for stronger colors and more penetration.

2—Some brands use alcohol; others use special blends of solvents.

3—Allow time only for evaporation. Color itself does not dry or "set" unless the material is a color varnish.

4—Alcohol or spirit stains raise the grain, due to the affinity of alcohol for moisture in the air.

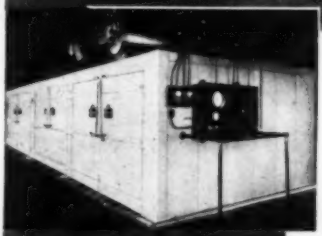
5—Soft spots always accentuated; hard spots much less affected.

6—Swelling of fibers by the water stops penetration and keeps color on top.

7—Soluble stains that raise the grain the least also spot the most.

8—Tend to accentuate the grain and soft spots due to the accumulation of pigment and darkening

OVENS



. . . . . of Any Type for Any Industrial Purpose

No matter what your oven requirements may be—large, small, high or low temperature—the Mahon organization is better qualified to design for you the right type of oven to do your particular job efficiently and economically. Mahon engineers design each oven installation to meet the individual requirements of the manufacturer . . . . heating equipment and special control devices are engineered right into the oven to insure constant operating conditions. Mahon engineers are available to you for consultation in the solution of any individual drying or baking problem . . . . the benefit of their wealth of knowledge, gained through practical experience covering oven installations in every industry in every part of the world, is placed at your disposal without obligation. Call in a Mahon engineer today.

THE R. C. MAHON CO.

DETROIT — — CHICAGO

Designers and Manufacturers of Complete Finishing Systems, Metal Cleaning Machines, Rust Proofing Machines, Hydro-Filter Spray Booths, Drying and Baking Ovens, Dust Collectors, Filtered Air Supply Systems and Many Other Units of Special Production Equipment.

MAHON

MEMO

Bombers or Toys... there's no finishing bottlenecks with Binks on the job.

Binks has everything for

RESPIRATORS • EXTRACTORS

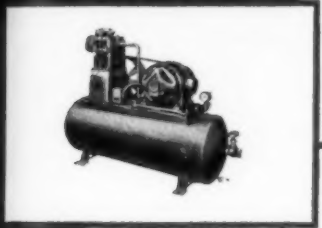
PAINTING OUTFI AIR CO

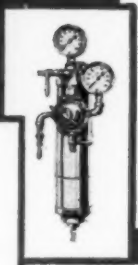
BINKS MANUFACTURING CO ANY

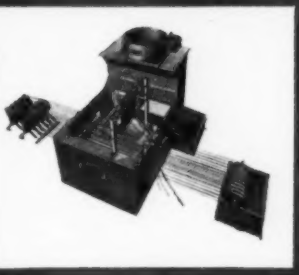
3114-40 CARROLL AVENUE • CHICAGO, ILL.

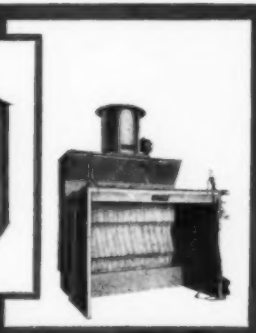
New York · Detroit · San Francisco · Philadelphia · Pittsburgh · Cleveland
Milwaukee · Boston · Los Angeles · Seattle · Windsor, Ont.

or complete spray finishing









OUTFI AIR COMPRESSORS • SPRAY BOOTHS • SPRAY GUNS • HOSE

COMPANY

Send now for your copy of this informative Binks catalog

Characteristic of Stain	Oil-Soluble Stain	Water-Soluble Stain	Spirit-Soluble Stain	Non-Grain Raising S.	Pigment-Oil Stain
Solvent	coal tar & petroleum (1)	water	alcohol	special solvents (2)	varnish, drier and veg. oil
Reducer	same	same	same	alcohol & specials	petroleum
Drying Time	1 to 18-hrs. (3)	18-hrs.	2-hrs.	2-hrs.	5 to 18-hrs.
Spotting	bad (5)	none (6)	slight	slt. to bad (7)	none to slt.
Grain Raising	none	bad	slight (4)	none to slt.	none
Color Fastness	poor	excellent (9)	fair-poor	good-excell.	practically permanent (10)
Color Strength	good	good	poor-good	poor-good	good
Clarity	good (11)	good	good	good	poor-good (12)
Bleeding	bad	none	none-slt.	none-slt.	none, unless oil dye is present.
Miscible with Varnish	yes	no	with care (13)	with care (13)	yes
Miscible with Lacquer	yes (13)	no	yes (13)	yes (13)	no
Effect on Top coat	causes rot	none	bleed slightly in some colors		sometimes affects adhesion and drying.

Tabulation of data on wood-finishing stains. Where numbers are shown in parenthesis, further information is revealed in numbered footnotes accompanying this article.

action of the solvent and oil. A wash-coat of sealer or shellac is recommended when any but the hardest of maple or birch is used.

9—The standard of permanence.

10—Generally made with earth colors, non-fading.

11—Sometimes smoky. Develops richness by bleeding into top coats.

12—Colors are transparent and also non-transparent. May be used to hide streaks in poor selections of wood. Good clarity may be obtained with proper stain and use.

13—Mixing of stains with finishing materials is a matter of practical experience with the individual materials. Permanency of color in a varnish or lacquer film is much less than when the same color is applied directly to the wood, except when pigment stains are used.

There are other types of stain not mentioned in the accompanying tabulated list. These include glazing stain, shading stain, stain-filler and chemical stains.

Glazing stains are similar in composition to pigment-oil stains, but contain more oil. This is necessary so that the glaze will stay "open" for as long as an hour, so that the brushing and wiping may be done to get the desired effect. These stains must be allowed to dry overnight to get proper drying and good adhesion of the top coats. *(See page 43.)*

Here's how YOU CAN GET MORE INFORMATION ON GKS STANDARD CABINET OVENS

Check and mail the enclosed postage-free card today!

Economical, dependable GKS Ovens are proving their value in many types of plants. One of the GKS Eleven Standard Size Ovens may be the answer to your baking problem.

A copy of the new bulletin completely illustrating the entire line is available absolutely FREE. Check and mail the enclosed card today.

Est. 1873

GEORGE KOCH SONS, Inc.

Manufacturers Of Industrial Ovens and Complete Finishing Systems.

EVANSVILLE, INDIANA

California's two days **NEARER** *to N Yor*

DU PONT

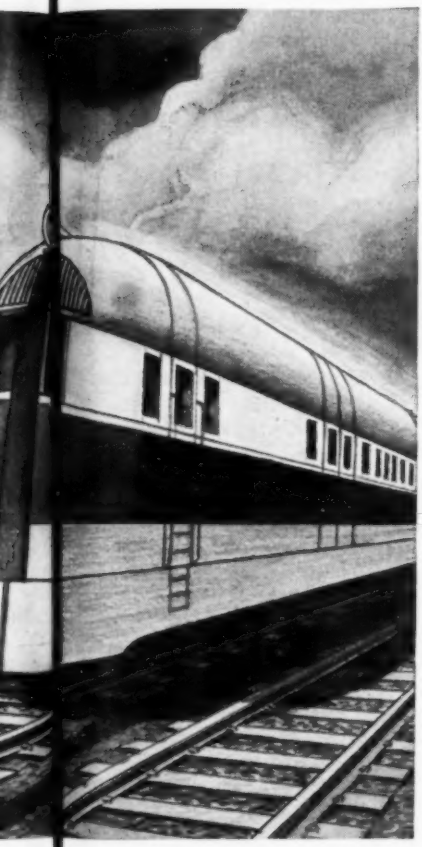
REG. U. S. PAT. OFF.

DULX

REG. U. S. PAT. OFF.

FULFILLING AGAIN THE DU PONT PLEDGE OF BE NING

N York nowadays!



Furniture finishing need no longer take 29 hours from sealer to packer

Now you can do it with DULUX in less than 7½ hours!

IT'S NEW! This DULUX finish for furniture means *greatly shortened finishing schedules.*

1. Made to dry quickly, at elevated temperatures—as low as 1½ hours at 140° ... DULUX offers you a 5½-7½ hour finishing schedule from sealer to packer ... as compared to the usual 29-43 hour schedule for lacquer. DULUX also saves time because it's easy to rub.

2. The unusual build of DULUX means that you need only one coat, instead of the two coats usual with lacquer. Material savings up to 30% are possible.

A faster production line than you've ever had is now possible with these two *different* advantages of DULUX. You'll like the character of DULUX, too. It has a clear, bright film with excellent depth of appearance. It has the resistance to cold cracking, scratching, printing, marring, water and alcohol you expect from high quality lacquer.

In fact, DULUX is a finish that combines the flow and build of varnish and the speed and quality of lacquer.

If you are interested in streamlining your production line, investigate DULUX —the finish that again fulfills the Du Pont pledge: "Better Things for Better Living ... through Chemistry." For full information, write E. I. du Pont de Nemours & Co. (Inc.), Finishes Div., Wilmington, Del.

LUX FOR FURNITURE

BETTER THINGS FOR BETTER LIVING THROUGH CHEMISTRY

EGYPTIAN FINISHING LACQUERS

For use over colored enamels

Withstand Buffing

Can be used directly on polished metals

Tough and flexible

Impervious to atmospheric conditions

Resistant to handling, buffing, tarnishing and marring

EGYPTIAN FINISHING LACQUERS are extremely durable and may be either air-dried or baked.

Ask for further information

•

THE EGYPTIAN LACQUER MANUFACTURING CO.
ROCKEFELLER CENTER NEW YORK

EGYPTIAN FINISHES

● In addition to Clear Lacquers made to meet standard and individual requirements, we also make a complete line of pigmented lacquer enamels and Synthetics, air-dry and bake.

Ask for details

EGYPTIAN FINISHES

EGYPTIAN *Superior* FINISHES

Shading stains are mixtures of stain and a thin cut of lacquer or varnish — generally lacquer. They can be made by the proper mixing of non-grain-raising stain and lacquer sealer. Careful mixing is necessary. It is best to reduce the stain slightly with lacquer thinner and then carefully work into the lacquer. Stain-fillers may be a combination of oil-soluble stain and filler or a water stain emulsified in filler, each with characteristics as indicated by the staining material used. In general, however, the staining strength is rather weak. The water emulsion type will have very little grain-raising tendency. On soft wood, ordinary wood filler will have some of the characteristics of oil-pigment stain, unless the soft spots are sealed with a wash-coat of sealer.

Chemical stains are of many varieties and cannot be easily typed. They are used only for special effects.

Don't fail to differentiate between pigment-oil stain and oil-soluble stain. Bleeding of the oil-soluble type bars it from many applications.

Make it a point to find out from the manufacturer, the types of the stains you use. If you know your types thoroughly you can select them for shortened schedules or particular properties, with safety. Otherwise, unforeseen difficulties may arise—when corrections or changes are expensive.

Maintenance Painting Handbook of 128 Pages Offered Free

The Maintenance Painting Handbook, a 128-page compendium of solutions to difficult industrial painting problems, has been published, and is ready for distribution, by the Industrial Paint Clinic of Chicago, it is announced by the American-Marietta Co.

This handbook, the first comprehensive guide of its kind in the paint industry, represents the accumulation of reports and records of technical paint questions extending over a period of 27 years. The findings in more than 100,000 actual cases have been compiled to give the results of first hand experience with paint problems that frequently baffle maintenance paint men.

Meticulously indexed for quick reference, the handbook contains complete descriptions of surface preparation, methods of paint application, and types of paints that have proved successful under widely varied conditions. Included in the manual are concise discussions of painting methods for protection against weather, radical temperature changes, climate, moisture, acids, fresh and salt water, smoke, chemicals, dust abrasion, and many other hazards to industrial painting.

M. J. Monahan, technical director of the Industrial Paint Clinic, said in discussing the compilation of the book, "Every technical paint question asked of and answered by the American-Marietta Co., and its predecessor, the American Asphalt Paint Co., since 1913 was taken from the files for careful editing and study.

"After months of careful sorting and classification, all usable material was condensed under specific headings. This was then turned over to our staff of chemists for scientific checking, and for the addition of information on the newest paint developments.

"Finally, the completed data were handed over to our copy writers for presentation in its published form."

The Industrial Painting Handbook will be distributed free of charge to industrialists and paint buyers. Requests for the manual may be addressed to the Industrial Paint Clinic, 43 E. Ohio St., Chicago, Ill.

You publish a small magazine called INDUSTRIAL FINISHING—and would you please advise what your single subscription rate for one year is? The writer is a sales engineer who makes many contacts in furniture plants with whom we do an extensive business on conveyors, for transportation and finishing work.—C. K. R. (Sales Engineer).

(Continued from page 15)
and who might be called upon to finish a job of this kind.

Supplementary Notes:

To answer some pointed questions put to me by the EDITOR, I am pleased to add the following remarks:

Yes, there is a lot of knife filling; but bear in mind that the casting to be filled is rough. The filling with the knife is necessary to bring the surface up to a uniform degree of evenness—and the application of succeeding coats, applied with the knife, is the proper way to build it up.

True, moderately smooth castings could be filled with the creamy paste you speak of. It could even be sprayed on, and the casting filled in that manner; but my article deals with large rough castings—castings of rather large dimensions, at times, which no amount of sprayed filler would fill, as a sprayed filler will merely build up by following the contour of the casting. The knifing operations bridge across depressions and fill them up to the desired degree of smoothness.

All of the castings we have finished in this manner have been heavy articles, some of them weighing as much as two ton. They don't lend themselves readily to being moved into a drying oven. We have never applied heat as a drying agent for the filler, although I believe heat could be used if limited to merely a force-drying operation. Too much heat might crack the filler where it has been laid on thick. Care should be exercised if the work is subjected to a drying operation. Drying without heat (that is, ordinary air-drying) has worked satisfactorily for us, but the nature of the article worked on should be the determining factor in deciding how best to dry it. If little knife filling was necessary, probably the article could be subjected to a forced-drying operation.

A Lacquer Coat Really Means 4 to 6 Coats

In applying lacquer, one single coat is never used. Sufficient coats should be applied to produce the desired result Workmen, when speaking of their operations, fall into the habit of using terms which, to the layman, might be misleading. Foremen do this too. In inspecting a job that is ready for the final coat of any finish such as lacquer, I might say to my spray operator, "Okay, go ahead now with your lacquer coat," meaning the customary operation of applying the lacquer. We usually apply four to six coats. Lacquer dries rapidly so that the four to six coats can be applied in what seems like a continuous operation. By the time a workman has sprayed on one coat, the place where he started has dried sufficiently so that he can start immediately to put on the second coat, and he continues in this way until the job is done.

Despatch Oven Co. Elects Officers

At a recent meeting of the Board of Directors of the Despatch Oven Co., Minneapolis, Minn., the following officers were elected:

A. E. Grapp....President & Treasurer
H. L. Grapp.....V.P. & Gen. Mgr.
F. H. Faber.....V.P. & Sales Mgr.
G. C. Keyes.....V.P. & Chief Eng.
G. M. Lund.....Sec. & Comptroller

It was noted at the midyearly meeting that the progress of the Despatch Oven Co. had fulfilled all anticipations. Further progress for the balance of the year including a number of important research projects was outlined.

BAKING

LUXKOTE

A LEADER
IN 1940

Can be obtained in any color. Has a most flexible baking schedule. Products finished with Baking Luxkote have Sales Appeal.

For full information write to The Patterson-Sargent Co., 1325 E. 38th St., Cleveland, Ohio.

THE PATTERSON-SARGENT CO.

NEW YORK BOSTON CLEVELAND CHICAGO KANSAS CITY

Tumbling Enamel

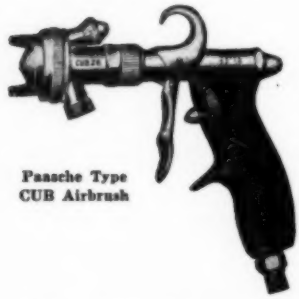
The Hilo Varnish Corp., 42-60 Stewart Ave., Brooklyn, N. Y., announces a new type of enamel for application to turned wooden parts of all kinds, by tumbling. It may be had in any color and with varying degrees of hiding. Three coats tumbled give solid hiding.

Directions call for reduction in the proportion of three parts enamel to two parts naphtha. Apply by tumbling. Bake at 150°F. for four hours, or up to 200°F. for two hours. It will not air dry.

Note: The enamel, on standing for some time in the can, may show the appearance of a fine dust film on the surface. This disappears when the enamel is thoroughly stirred, and it has no harmful effect on the finished work.

Paasche Airbrush

The new Paasche Type CUB airbrush, illustrated here, not only looks new and different, but is new and different in many ways. The



Paasche Type CUB Airbrush

new easy-grip, black tenite handle, the new larger easy-pull trigger, the new knurled tenite fluid-lock-control —these are new features instantly apparent.

The new calibrated control of spray and the larger, more-easily-removed and easy-to-clean aircap are new features that do away with defective spray patterns, orange peel, streaks, runs and sags, air and fluid leaks, excessive mist, etc.

The shorter fluid passage increases coating speed and prevents clogging. Because this new-type Paasche airbrush is so light in weight, it is very easy to handle. The shorter, stronger needle, with efficient cone-shaped point, prevents clogging. There are only two parts to keep tight.

This universal type airbrush atomizes all finishing materials at high speed, under perfect control, and provides a wider, wetter spray. It may be used with pressure tank or overhead bucket, gravity or syphon cup. An outstanding control feature is that this airbrush is adjustable both for any air-pressure or any air-consumption . . . . A product of the Paasche Airbrush Co., 1909 Diversey Parkway, Chicago, Ill.

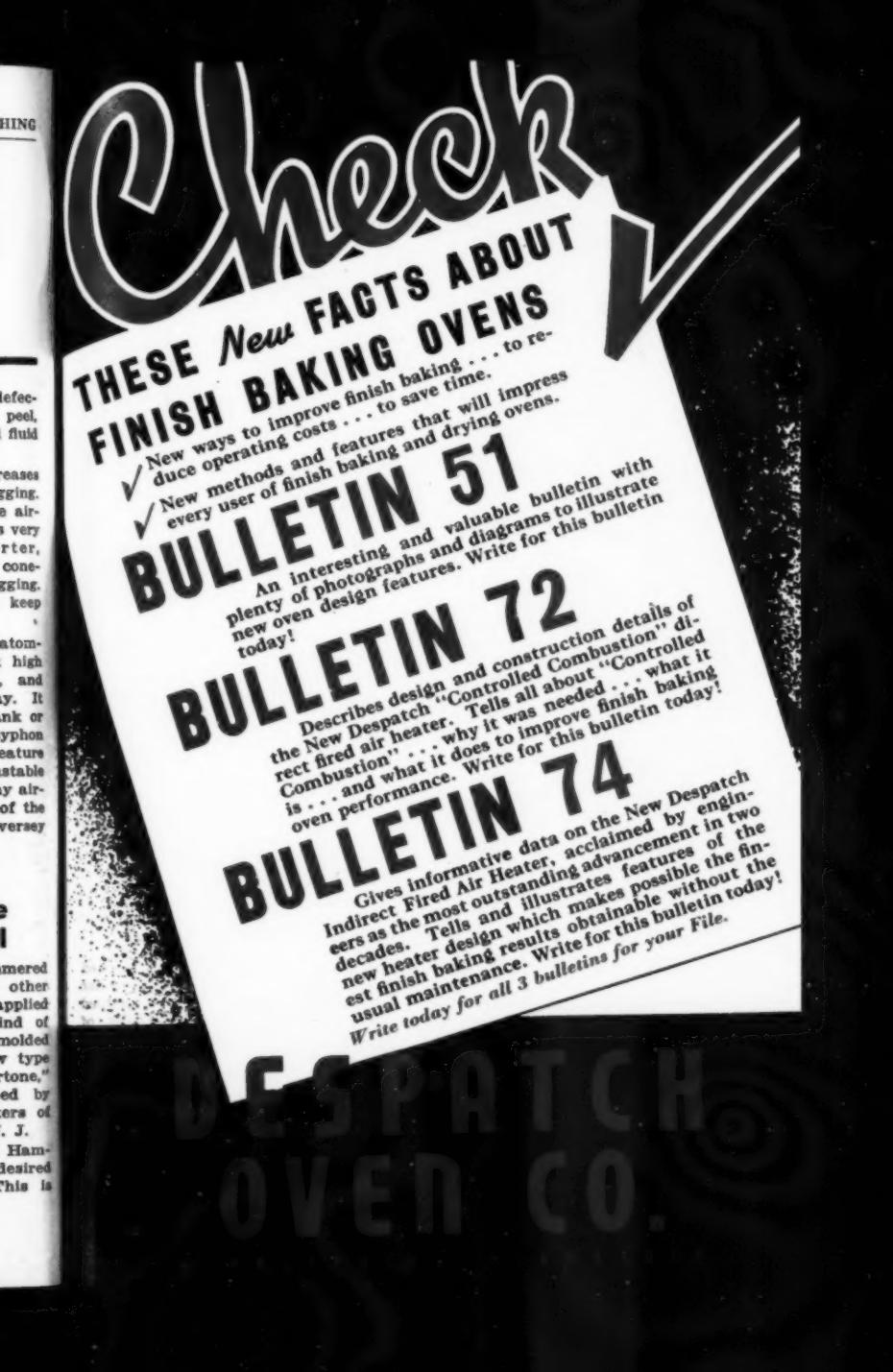
New...

MATERIALS SUPPLIES EQUIPMENT

Finish Looks Like Hammered Metal

Finishes resembling hammered silver, copper, bronze, and other ornamental metals can be applied to products made of any kind of metal, and also to bakelite molded plastics, by the use of a new type of finish known as "Hammertone," which was recently developed by Maas & Waldstein Co., makers of industrial finishes, Newark, N. J.

In finishing a surface with Hammertone, a base coat of the desired color is first sprayed on. This is


Check
THESE New FACTS ABOUT
FINISH BAKING OVENS
✓ New ways to improve finish baking . . . to reduce operating costs . . . to save time.
✓ New methods and features that will impress every user of finish baking and drying ovens.
BULLETIN 51
An interesting and valuable bulletin with plenty of photographs and diagrams to illustrate new oven design features. Write for this bulletin today!
BULLETIN 72
Describes design and construction details of the New Despatch "Controlled Combustion" direct fired air heater. Tells all about "Controlled Combustion" . . . why it was needed . . . what it is . . . and what it does to improve finish baking oven performance. Write for this bulletin today!
BULLETIN 74
Gives informative data on the New Despatch Indirect Fired Air Heater, acclaimed by engineers as the most outstanding advancement in two decades. Tells and illustrates features of the new heater design which makes possible the finest finish baking results obtainable without the usual maintenance. Write for this bulletin today!
Write today for all 3 bulletins for your File.
DESPATCH OVEN CO.

followed immediately by a spatter coat of Hammertone liquid, which produces the hammered pattern in the base coat. The product is then baked at medium heat for an hour, resulting in a lustrous metallic finish that is very tough and durable. By using a special form of spray gun perfected by Maas and Waldstein, for the spatter coat, even an inexperienced sprayer can produce any desired hammered pattern and maintain it uniformly.

Hammertone, according to the manufacturer, is an excellent finish for metal novelties, heating units, air-conditioning equipment, metal cabinets and furniture, bakelite radio cases, and many other products. The speed and ease with which it can be applied makes adaptable Hammertone for continuous production methods.

Rapid Finish System for Aircraft Fabric

The Aircraft Division of The Lowe Bros. Co., Dayton, Ohio, announces a Process Specification which describes the process of applying Thermotite to the fabric covering on aircraft wings and fuselages. Quoting from the company's literature:

"Thermotite is an adaptation of finishing materials to elevated temperature methods of application. The purpose of Lowe Bros.' Thermotite system is to reduce the viscosity of organic finishing materials through heat and without the use of excessive proportions of solvents. In so doing the solid content of these materials so used is maintained at a relatively high and desirable level, thus securing equivalent film thickness with a lesser number of operations.

"The saving in time, labor and material, through the adoption and use of Thermotite, is a self-evident and proven fact. Production trials in various plants denote actual savings of $15.00 to $35.00 per unit and upwards."

Cleans Brass

Having been successfully used under actual production requirments in a number of plants and clearly evidenced its outstanding advantages and economies, an improved method for the electro-cleaning of buffed brass, bronze and other copper alloys has just been announced by Oakite Products, Inc., 22 Thames St. New York, N. Y. Data on it is now being released to the trade through its nation-wide organization of Service Representatives.

Said to eliminate the necessity of a cyanide dip and a copper strike before bright nickel plating, the new method, known as the Oakite Oxbrite Process, makes possible, in addition, the bright nickel plating of soft soldered work without preliminary copper plating.

Another important feature claimed for the method is the assurance of freedom of peeling of electro-plated deposits caused by in adequate preparation of the surfaces. Because it effectively removes all soap films and metallic deposits and also prevents surface embrittlement, the method provides much finer adhesion, so that bright lustrous, uniform electro-plated deposits are obtained.

Clear Metal Finish

A new coating material, known as "Miccrolac," to be used to protect and beautify metal surfaces of either natural or plated finishes, has been introduced by the Michigan Chrome Co., 6340 E. Jefferson Ave., Detroit, Mich.

One of the outstanding characteristics of this new material is its color, which approximates that of distilled water. In addition, it dries to a high luster, and offers excellent qualities of adhesion, flexibility and abrasion resistance. It dries exceptionally fast—the type of coat applied for ordinary decorative work drying in only a few seconds' time.

Miccrolac provides excellent re-

SCARECROW OR BEAUTY...

Which typifies your product?

Some commercial products repel attention . . . others attract it . . . and in most cases the difference is the manner and taste in which products are finished.

Those manufacturers who consider finish of minor importance are overlooking one of the most powerful sales stimulants it is possible to employ.

To aid those who would like to enhance the beauty of their products . . . likewise sales-appeal . . . we maintain a creative studio. In this studio many products have been analyzed and new finishes created. The results have invariably been to improve appearance and stimulate sales.

This service is rendered without cost or obligation to reputable firms. Write us about your products and finishing problems.

ROCKFORD VARNISH COMPANY

Manufacturers of Finishing Materials

ROCKFORD • ILLINOIS

sistance to sulphur dioxide, sunlight, moisture (preventing rust), oil, grease, gasoline, and all commonly known chemical fumes. It does not blush, even in the most humid weather.

A unique feature of this material is that it is not to be mixed with thinner as has been the usual practice with similar lacquers. It is used exactly as it comes out of the container. It is accurately adjusted for viscosity and total solids to insure absolute uniform results. This eliminates all possible chance of contamination during the mixing operation, and does away with the guesswork and extra labor usually involved in adding thinner to the lacquer.

Micrrolac can be applied by spraying, dipping or brushing. Among its many applications are: Silver-plated ornaments, trophies, etc., polished brass, brass-plated light fixtures, hardware, copper aluminum, wrought iron and stainless steel surfaces. It is an excellent material for protecting the finish on exposed metal surfaces of scientific instruments. It can be used on all types of metal mouldings.

Rubber Compounds Are "Electric"

Specialized compounds of natural rubber and synthetic rubber, having a high degree of electrical conductivity, have been developed by laboratory research chemists of The B. F. Goodrich Co., Akron, Ohio.

The company can now furnish solutions of synthetic rubber which can be applied to the surfaces of natural rubber products like paint, and which will carry away static. This material has already had successful application as belt dressing to carry away static from transmission belts.

Electrically conductive compounds can generally be made softer and more "rubbery" from synthetic rubber, while in the case of natural rubber the compound has to be "loaded" and consequently is stiffer and less yielding.

Natural rubber, unless specially compounded has the highest electrical resistance of any solid material. For conducting static a certain amount of resistance is desirable, since it prevents sparking, and the specialized compounds, both in synthetic and natural rubber allow the amount of resistance needed to remain in the material.

G. M. Spray Gun

A spray gun for pressure tank use, claimed to offer greater atomization, greater speed, and greater economy for the user by resulting in the elimination of 25% of the mist, is announced by the G. M. Mfg. Co., 216 N. Clinton St., Chicago, Ill.

According to the company's statement:

"Greater atomization is attained by the patented nozzle which has a combination of external and internal atomization, giving a double breakage of paint particles. The finest atomization is made possible because of this unusually-shaped nozzle which has air ports so spaced that there is said to be practically no expansion before the air touches the material, thus applying all power of expansion to the complete atomization of the paint.

Many advantages are claimed for it.

Day's Enamels are made in all types — lacquer, varnish, synthetic, spirit. They are made for application by spraying, dipping, rolling, screening, tumbling and brushing. No matter what your enamel requirements are, there is a Day product that will give you a more attractive and more economical finish.

Day chemists and technical men are well qualified through experience to provide an enamel which is exactly suited to your production requirements and which provides the sales appeal you want.

Mention your requirements and receive Day recommendations. The more information supplied, the more definite the recommendations can be.

Would you like a color card showing 36 attractive enamel shades? A copy is yours for the asking.

JAMES B. DAY & CO.
CHICAGO

"Greater speed is provided by the simplified and effective construction of the gun which aids the user to complete his task of spraying in much less time than with a complicated apparatus.

"Greater economy by the saving of time per job and the saving of 25% of the mist results in savings as high as 25% of the actual finishing cost per job.

"The G. M. No. 5 gun is built expressly for use on pressure material containers or paint pressure lines, requiring 20 to 30-lbs. material pressure and 60 to 80-lbs. air pressure. It is recommended for spraying lacquers, enamels, oil paints, varnishes, cold-water paints, calcimines, etc., without special nozzles for each material.

"The double breakage and fine atomization eliminate orange peel because the operator is able to apply a much wetter coat of material with the patented nozzle. The G. M. No. 5 gun sprays from ⅛-in. to a full wet fan spray of 14-in."

Skin Protector

The big problem of skin protection for workers in any of the industries where men work with finishing materials, paints, inks, etc., seems to have been solved by a new, yet proved, preparation called "Texkin," which is put out by Doster and Co., 4835 Rice St., Chicago, Ill.

"Texkin" is in the form of a soft smooth cream, about the consistency of shaving cream. It is applied by rubbing carefully over all of the exposed skin surface before starting to work. Within two or three minutes this cream dries to an unnoticeable thin film so smooth that it cannot be felt while working, yet so tough that it affords complete protection. At the close of work, the "Texkin" film, with its accumulated stains and dirt, is quickly and easily washed off with soap and water, leaving the skin soft and smooth.

By means of this resistant film, skin irritations from chemicals as well as industrial dermatitis are avoided. In lacquer and paint spray rooms it is reported that "Texkin" has been found to be of exceptional value. "Texkin" is packed in 8-oz. jars, and in quart and gallon cans.

Paint Brush Keeper

The Y & N Paint Brush Preserver consists of a metal box approximately 11 x 12 x 14-in., equipped with six separate compartments. Five of these compartments are used to suspend brushes of various lengths and widths in a preserving liquid. The sixth compartment contains a wringer, consisting of two rollers, easily operated by a slight touch of the fingers which, by placing the brush between the rollers and drawing it upward, extracts the surplus paint from the brush after being used, or the preserving fluid before using.

Preserving fluid (linseed oil is preferred) is placed in each separate compartment to the desired level, depending on the length of the bristles. Suspension is accomplished by drilling a small hole in the brush handle and placing same over an adjustable peg. Each compartment (also the clips and wringer attachment) is easily removed for cleaning. The separate compartments permit more than one color of paint, each color brush hanging in its own compartment. The tightly fitted metal container eliminates all fire hazards; a product of Yenne & North Mfg. Co., P. O. Box 362, Wooster, Ohio.

New Industrial Oven Book

A new 24-page book (wire bound between covers in black, orange and white) illustrating and describing gas-fired and electric industrial ovens, has just been issued by The Kirk & Blum Mfg. Co., Cincinnati, Ohio, designers, fabricators and installation contractors for sheet-metal equipment. It contains important and valuable information for executives interested in faster and more economical drying, baking and enameling operations.

SCOTCH *Masking* TAPE

PRESSURE SENSITIVE—SEALS WITHOUT WATER

gives quick, dependable protection on many kinds of spray or paint jobs.

FOR TWO-TONES—
Color separation is clean and sharp—no saw-tooth edges or build-up at the lap.

FOR STRIPING—
Spraying stripes between two lengths of SCOTCH Masking TAPE is fast, easy and accurate.

FOR SMALL AREAS—
Masking name plates, serial numbers, vents, etc., saves time and removes the need to "baby" the spray around these areas.

FOR PATTERNS—
Patterned areas and borders are easily masked by cutting the designs from suitable widths of SCOTCH Masking TAPE.

Made and Patented in U. S. A. by

MINNESOTA MINING & MANUFACTURING CO.

SAINT PAUL MINNESOTA

Canadian Manufacturers and Distributors, CANADIAN-DUREX ABRASIVES, LTD., 154 Pearl St., Toronto, Can.

Kills Black Spots

Regarding the Q. & A. entitled, "Bleached Walnut Has Black Spots", published in August, 1940 issue, pages 62 and 63, we are pleased to offer our solution to the problem, based on our actual experience in the field.

After bleaching the wood with our New Period No. 1 and No. 2 bleach solutions, wash off. In the process of washing off, use water with the addition of a small amount of 28° acetic acid—in the proportion of about one pint of acetic acid to about three quarts of water.

We have found complete success, with the above process in eliminating the black spots in question.—N. Y. WOODFINISHERS' SUPPLY CO., INC.

Recovering Solvents

Under the above title, in July 1940 issue, pages 59 and 60 we notice a problem presented by the B. A. Co., in reference to recovering solvent from plastic material. We could offer a few suggestions, acquired by years of redistilling and rectifying essential oils, many of which contain heavy and very insoluble gums. We are pleased to suggest what we would employ, if we had to do the same work.

In the first place, do not use a metal still. Use a glass-lined still, since resins and gums do not attach themselves to glass like they will to all metals. Also, glass-lined stills are easier to clean, since acids and alkalies do not affect glass, but these strong cleaning materials can not be employed in copper, iron or tin-lined apparatus.

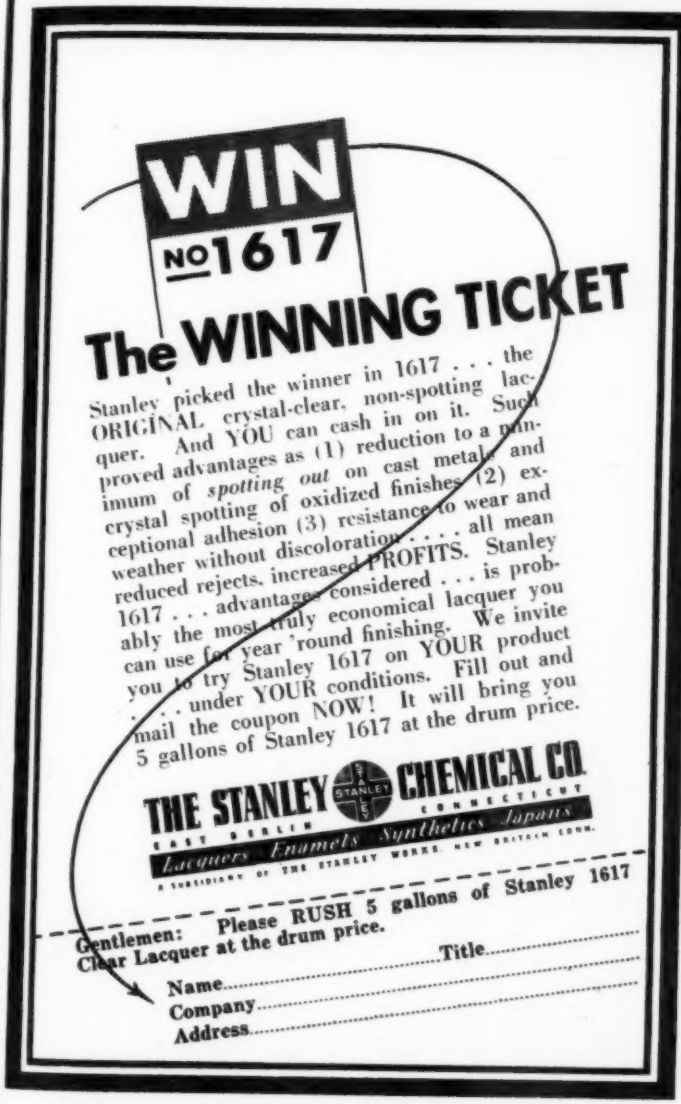
Questions; Answers

Questions are welcome and will be answered promptly by mail. Readers are invited to prepare and send in additional information relating to any of these questions and answers.

Eliminate the "rose" or any interior coil; use only a steam-jacketed type. Install a baffle-plate that works with a vacuum pump to throw back all heavy fractions. If the still is not already equipped with a large gate valve at the bottom, add that to the recovery shell.

Before putting the solvent to be recovered in the still, run it through a separating machine to throw out all solids or heavy portions. This corresponds to a centrifugal. This gives the lighter fractions, permitting the filtering off of most of the heavier gums and solids that would not come over into the condensers, but which tend to clog and slow down the regular process of distillation.

Fill the still about one fourth with water, pouring over this the petroleum solvent that we presume is insoluble in water. This will precipitate the heavier matter out of the solvent, permitting the actual solvent to remain on the surface. As you raise the temperature, the volatile vapors will come over, being oil and water. Passing over the cold condensing surface in the cooling coils, this comes out as liquid, the solvent on top and the water


WIN
NO1617
The WINNING TICKET
Stanley picked the winner in 1617 . . . the ORIGINAL crystal-clear, non-spotting lacquer. And YOU can cash in on it. Such proved advantages as (1) reduction to a minimum of *spotting out* on cast metals and crystal spotting of oxidized finishes (2) exceptional adhesion (3) resistance to wear and weather without discoloration . . . all mean reduced rejects, increased PROFITS. Stanley 1617 . . . advantages considered . . . is probably the most truly economical lacquer you can use for year 'round finishing. We invite you to try Stanley 1617 on YOUR product . . . under YOUR conditions. Fill out and mail the coupon NOW! It will bring you 5 gallons of Stanley 1617 at the drum price.
THE STANLEY CHEMICAL CO.
EAST BERLIN CONNECTICUT
Lacquers Enamels Synthetics Japans
A SUBSIDIARY OF THE STANLEY WORKS NEW BRITAIN CONN.
Gentlemen: Please RUSH 5 gallons of Stanley 1617 Clear Lacquer at the drum price.
Title
Name
Company
Address

beneath. The addition of common rock salt to the condensed mixture, makes the water heavier and hastens the separation. The oil can be poured off the surface.

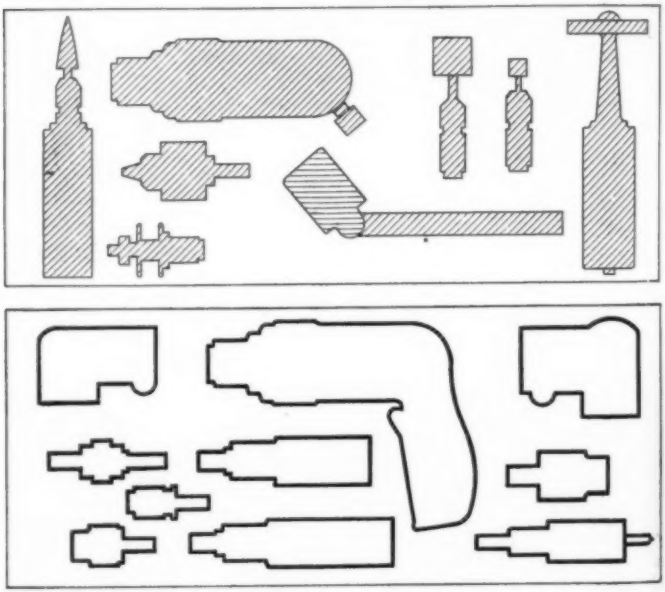
The non-volatile portion in the still can then be washed out with water, using dilute caustic to dislodge and remove any solids that may adhere.—CHAS. V. SPARHAWK.

How to Do Stencil Job

We have a problem that concerns the use of some sort of stencil with which to make an aluminum silhouette over a green enamel color. We have been using a metal stencil to make this with, but can't get it to fit tightly enough to make a good clean-cut line. A silk-screen stencil will not work because there isn't room enough between the edge of the tray and stencil to fit it and make it work.

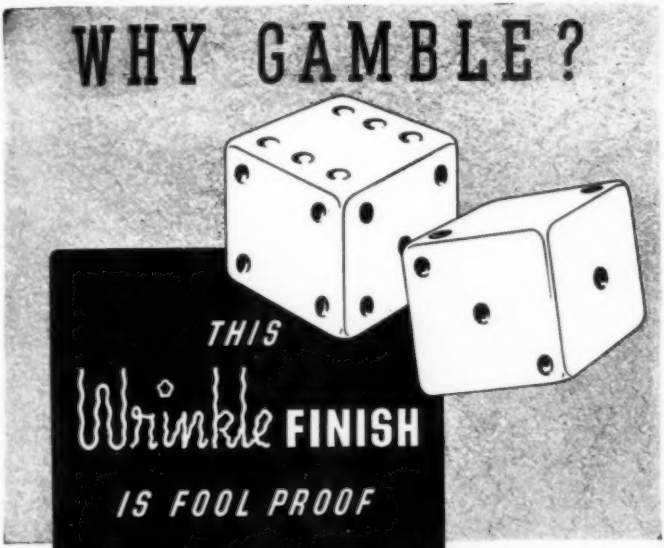
I am sending you two prints of these trays, with the dimensions marked on, and would appreciate it if you or some reader could give us some aid on this problem. The tray is 15-in. long, 6½-in. wide and 1¾-in. deep. I am also sending you an illustrated folder showing how this tray is used in the tool kit.—P. H. (foreman finisher).

Note by Editor: These trays



Paint layouts for bottoms of upper and lower tool trays. In the upper tray, figures are painted in solid with aluminum, but in the lower one, they are heavily outlined.

WHY GAMBLE?



THIS Wrinkle FINISH IS FOOL PROOF

Regardless of variations in humidity or furnace conditions, Wrinkle-Cote produces in a single coat a perfectly uniform, close grained, soft lustre finish of better gloss and color than heretofore thought possible. Manufactured under a New Wrinkle Inc. License and in Watson-Standard's "Prescription Finish" Plant, Wrinkle-Cote offers you a definitely better product at the right price . . . Write us today for sample.

WRINKLE • COTE

. THE WATSON-STANDARD CO.

Manufacturers of

PAINTS . . . VARNISHES . . . INDUSTRIAL FINISHES AND LITHOGRAPH COATINGS

TOUGH JOB HEADQUARTERS

℞ Prescription Finishes

Give us your metal coating problem. We guarantee you an answer based on your conditions, and not just a standardized formula.

FACTORY AND GENERAL OFFICES: PITTSBURGH, PA.
WAREHOUSES: BOSTON · BUFFALO · DETROIT · NEW YORK

are like bread pans, only they have vertical sides, and the stenciled outlines of service station tools are marked in the bottom, so the tool user can see at a glance just where to replace any tools he has taken out. Spring snaps open and partly close over the tools to hold them in place in the tray. The accompanying drawings show the paint layout for upper and lower trays.

* * *

We have just taken up your problem with the foreman of finishing here at a local concern that manufactures name plates and he recommends what he is using on a great deal of his work —an electric magnetic chuck to hold the sheet-iron stencil close to the bottom of your painted metal tray while you spray the aluminum paint through it.

Are you familiar with the magnetic chucks? The Printz Electric Co., Detroit, Mich., who made the 12x19½-in. magnetic chuck used by this local concern, replied to our letter of inquiry as follows:

"We have no standard information on this particular line except that we have had considerable experience with stencil work and construct them [magnetic chucks] to hold thin stencils firmly at all points, even through ¼-in. plywood. We furnish all chucks required by the Stencil Engineering Co. . . . . Stencil chucks are of special design and must not be confused with ordinary chucks which are inefficient for this special type of work."

According to present price quotations by this company, the net price on a 10x24-in. magnetic stencil chuck is about $200.

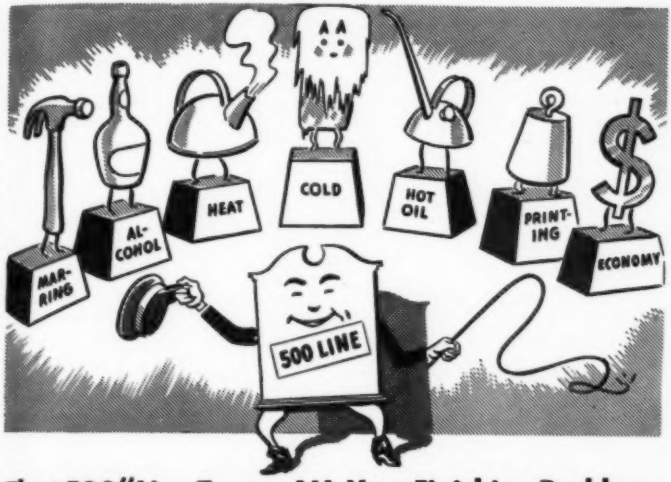
As we understand it, the magnetic chuck includes a flat iron plate that can be instantly magnetized by turning on electric current, and as quickly demagnetized by turning off the current. This plate could be about the size of your tool tray and positioned level or tilted slightly like some draftsmen tilt their drawing boards.

Your stencil can be made of 30 or 32-gauge sheet iron and pressed into the form of a tray or pan to loosely fit into the tool tray which you plan to stencil. In this way the upright sides of your stencil will prevent overspray from striking the insides of your tool tray.

Assuming that you have this magnetic chuck and a suitable sheet-iron stencil in readiness, you place the stencil in the tray; then place both on the flat surface of the magnetic chuck, throw the switch, and both sheets of metal (tray and stencil) will tightly cling to the face of that chuck, like paper on a wall. Then spray your aluminum paint, release the current, lift the stencil and repeat the operation on another tray.

This ought to work satisfactorily in your case, particularly if the bottoms of your tool trays are really flat so the stencils will lay close to them. You can spray through the same stencil several times before it needs to be cleaned.

Really, this method of stenciling looks so good that we hesitate to suggest anything else —especially if it is not practical to paint and stencil the trays while the metal is flat, and then form the trays afterwards. It is possible that you would find other uses for the magnetic chuck. We know that they are being used more and more by various manufacturers.—EDITOR.



The "500" Line Tames ALL Your Finishing Problems

● An animal trainer who can't handle *all* the lions in the cage *all* the time won't last long in any circus. So an ordinary furniture finish, "given a trial" because it seems to meet some particular requirement, is likely to bring new troubles that force a manufacturer to change brands again quickly.

But those who test Glidden's "500" Line don't switch from it later. It's a *balanced* finish, combining all the characteristics of the finest lacquers and sealers in a new standard of quality. In comparative tests it has consistently outperformed competitive finishes in the very points on which they base their strongest claims.

594 LACQUER SEALER **595 GLOSS LACQUER** **596 FLAT LACQUER**

Superb clarity in all sheens—*plus* free spraying and smooth flowing—*plus* exceptional resistance to marring, printing, alcohol, water or oil—*plus* high ability to withstand extreme temperature changes.

Why not insure greatest freedom from *all* finishing problems by using the trouble-free "500" Line?

THE GLIDDEN COMPANY • National Headquarters, Cleveland, Ohio
Branches or Factories in Principal Cities

Spray Booth Floor Covering

Referring to the Q. & A., under the above title, as published in August, 1940 issue, page 60, the suggestions given may be of advantage, but to make a mixture of kerosene and gasoline, heating same and adding shredded wax to the hot mixture, is a very dangerous procedure. Some day somebody is liable to get blown up, and there may be a spray booth, if not a whole factory, less—depending on where the mixture is prepared.

My suggestion would be to have a container with only kerosene ready, out in the open. Melt a low-melting-point paraffin wax in an iron kettle. When it starts to smoke, take it outside and pour it into the kerosene while stirring. About 12-oz. of wax to the gallon would be a good proportion. Keep this mixture in closed 5-gallon cans. When ready to apply, add some finely sifted sand or pumice. This will prevent workmen from slipping on the floor.

If desired, you can coat large sheets of rosin building paper with this mixture. These sheets can be tacked onto the floor; they are easily removed and replaced with new ones.—GEO. WHIGELT.

We notice that you received an inquiry for a spray booth floor covering from the A. D. Co. (August issue, page 60) in which they stated that they required a product to be used on floors. We manufacture a product known as "Sepcote G", which can be applied to the floor, and when allowed to dry overnight, it leaves a hard surface which is not attacked by any thinner. This surface is hard enough to allow the workman to walk over it without injuring its properties. A distinct advantage in the use of this material is that the entire paint film can be hosed off with hot or cold water and can be scraped off with an ordinary scraper with little effort. — INDUSTRIAL CHEMICAL PRODUCTS CO.

I noticed that some finishing rooms have had the floors thickly dusted with soapstone, so that they can be scraped easily. In dipping rooms I have noticed that some finishers mix course sawdust with old machine oil which has been diluted with kerosene. The sawdust is "wrung out" thoroughly, so there is no excess of oil to cause slipping. The oil-soaked sawdust is then spread around the drip pan to catch any drippings, after which is can be easily swept up.—H. F.

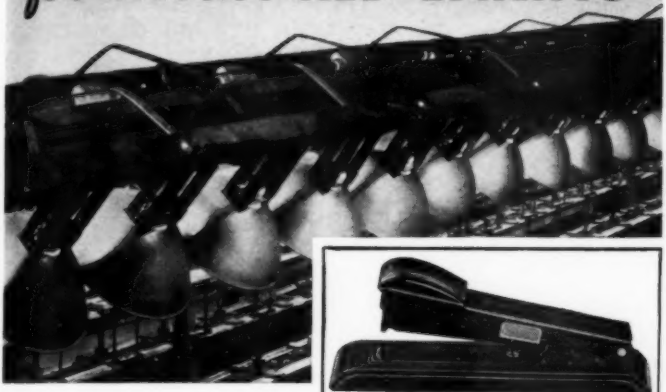
Testing Thinners

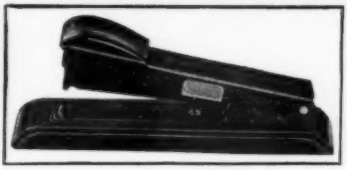
You have a very interesting article in the June issue, pages 16-20, on "Facts about Thinners," by J. W. McHugh.

At this time we are using a considerable quantity of thinner. We are interested in your test table on page 18 of that issue, but would like to have a little more information if possible. We have no laboratory in our plant to test thinners from a professional standpoint but we were thinking that probably, from the figures given in this test, we could work out some information that would be very valuable to us.

With this information in mind probably you would be able to tell

A BETTER "WRINKLE" for INFRA-RED BAKING





There's a Sample in your Office— on your Bostitch Paper Fastener

ATTRACTIVENESS of appearance . . . a feature of every Bostitch Stapling Machine . . . has for years been assured by the use of Berry Brothers Ruf-Kast Wrinkle Finish. Illustration shows their new Infra-Red Tunnel.

The new Berry Brothers Infrabake Ruf-Kast Finish bakes in from 5 to 7 minutes... *ready to pack and ship as soon as dry!* Berry Brothers Infrabake Finishes offer the newest development in this important field. Write for complete information.

BERRY BROTHERS
Industrial Varnishes • Enamels • Lacquers
DETROIT, MICHIGAN • WALKERVILLE, ONTARIO
JERSEY CITY • BOSTON • CINCINNATI • CHICAGO • ST. LOUIS

us which scale would be most valuable to us. We are interested in the distillation tests and would like to know where we can obtain the proper information for the exact procedure, as described by the A. S. T. M. Method D86-30.

We would also like to know how we can tell when benzol and toluol are present in thinners.

At the present time we are using a thinner manufactured by the —— Co., and we wish to compare this with some of their competitor's thinner.—H. R. Co.

I am sending you a copy of the A. S. T. M. Standard Method of Test for Distillation of Gasoline and Similar Petroleum Products, Designation D86-27. This is not the most recent specification, but it is the only one I have available. The differences between this and the later specifications are slight. All the apparatus described in this specification can be purchased from the Arthur H. Thomas Co. in Philadelphia, Penna., dealers of scientific laboratory apparatus.

Anyone who has had any laboratory experience should be able to make a distillation test on ordinary thinner. The method is described in detail, with all the necessary precautions to prevent explosion or fire. I feel sure that you will be able to make this test accurately.

In regard to your question as to the determination of the presence of toluol or benzol, this is more difficult. If the thinner were 100% benzol or toluol, the difference could be easily detected by a combination of specific gravities and distillation range. However, if the thinner is a mixture of petroleum and other thinners, the presence of either of these two materials is more difficult to ascertain. A good chemist could tell the difference between a mixture of petroleum spirits and benzol, or petroleum spirits and toluol by the odor, but he would not be able to prove this in a court of law.

If your question arises from a standpoint of toxicity, this could be proved in a physiological laboratory by its effect on guinea pigs or the human system. However, most states have laws against the use of benzol in paint or lacquer thinners, so I doubt if any reputable thinner house would deliberately put benzol in a thinner without the knowledge of the consumer.

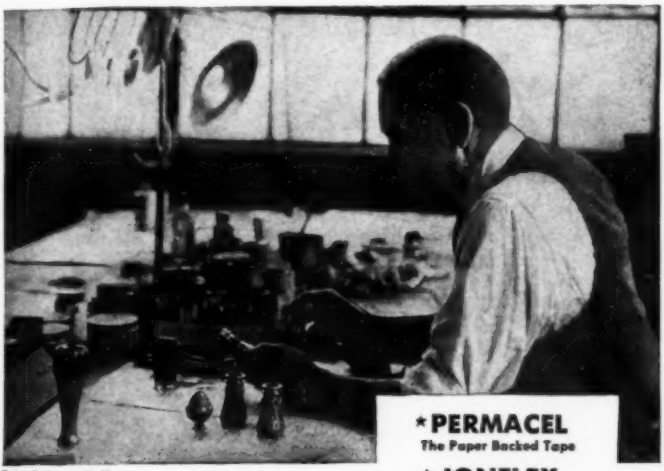
If your thinner is a mixture of petroleum spirits and toluol, the proportions can be estimated by means of a so-called Kauri Butanol test. Petroleum spirits have a much less solvent action on varnish resins and gums than does toluol. By the Kauri Butanol test, petroleum spirits run from 25 to 35 solvent power, while toluol usually runs 100 to 110. Any mixture of these two materials will give a solvent power result somewhere between these two figures.

The Kauri Butanol test is made as follows:

Twenty grams of this mixture are weighed into a flat-bottom flask. This is placed on white paper carrying fine black printing and the volatile solvent to be tested is titrated into it, keeping the material at exactly 77°F. and continuing the addition until the point is reached where the printing is blurred. The number of cc's required denotes its solvent properties.

The Kauri Butanol Solution can be purchased from the Stew-

★Used and Preferred for METAL NOVELTIES



Ewing Galloway, N. Y.

This efficient line of pressure sensitive adhesive tapes is in great demand to help speed up production. Expert finishers know they can depend on these tapes for perfect color separation, striping and masking; for all around protection of finishes and surfaces; for shipping and to hold movable parts in place.

You, too, will find the Industrial Tape Corporation line trustworthy and economical.

Our laboratory will work with you to help solve your special tape problem. No obligation.

INDUSTRIAL TAPE CORPORATION
NEW BRUNSWICK, N. J.

★PERMACEL
The Paper Backed Tape

★JONFLEX
Fine Cloth Tape

★INDUSTRIAL
Coarse Cloth Tape

UTILITAPE
Waterproof Cloth Tape in Standard Colors

ELECTAPE
With Flexible Bakelite Coating

METACEL
Metal Foil Backed Tape

TEXCEL
The Cellophane Tape

•

Samples on request

art Research Laboratories, Franconia, Alexandria, Va.

The equipment necessary for this test consists of an Erhlenmeyer flask 250-c.c., a burette of 100-c.c. volume, and a set of scales. All of this equipment can be purchased from Arthur H. Thomas Co.

I believe you can accurately check your incoming thinner purchases by means of specific gravity, distillation range, and Kauri Butanol solvency test.—J. W. McHUGH.

Another Cross for the Bedeviled Salesman

MR. EDITOR, you invited comment on the quoted letter in your editorial entitled "What They're Talking About," page 75, August 1940 issue. Here are my comments:

Among other things, also subject to possible objection, the article states, "The salesman—if he is a real finish salesman—takes the materials the factory gives him to sell, reads all they say about it; then gets by himself somewhere and tests it personally. He finds out just what it will and will not do. Then and only then is he ready to talk it and sell it."

Ye gads! Still another cross for the bedeviled paint salesman to carry! Still another title to the illustrious list that now strings out behind his name, and what a title would this latest suggestion entail is, for example, "Official, Practical and Technical Investigator for the Final Determination as to Customer Product Suitability."

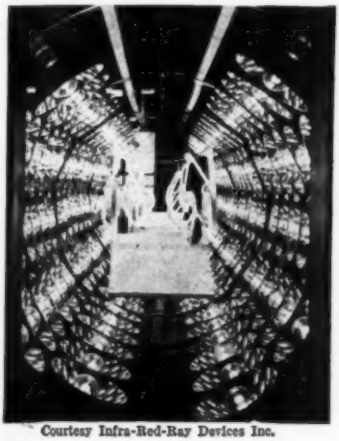
Does it not occur to the friend who speaks of "waste of time" that the routine he is advocating; namely, that the salesman get by himself somewhere and "find out just what it will and will not do" obligates plenty of time? And that the procedure suggested occasions probably long and undesirable delays in the submission of the sample? And that finally and most important he is detailing to the salesman work of a nature that specifically is a duty of the laboratory or technical service department of the paint company?

Industrial products in the main are formulated to meet definite customer requirements. The salesman's job is to comprehend the situation and the requirements in an intelligent manner and to report these requirements to his factory in such detail and accuracy that the technical staff may possess a full and complete understanding of what is expected of them and of the product to be formulated.

The real hitch is that many salesmen skim over these urgent and essential details, and, through carelessness or ambition to appear to know it all, fail to make the serious careful study which the particular case at hand is entitled to. Thus, lacking in their own investigation and the accumulation of pertinent facts, their reports to the factory frequently fall way short of telling the whole story, and thus the samples they receive are of necessity formulated on the basis of insufficient or inaccurate information. Under such unfavorable circumstances, I am willing to agree with our friend, for the entire procedure then becomes a hit-or-miss proposition.

It isn't necessary for the salesman to conduct the tests in ques-

RAYDUR ENAMELS AND WRINKLES For Infra-Red Radiant Heat Ovens



Courtesy Infra-Red-Ray Devices Inc.

M&W RAYDUR BAKING ENAMELS and RAYDUR DUART WRINKLE ENAMELS have been especially developed to ensure best results with use of the new quick and convenient Infra-red (radiant heat) baking process.

They will bake hard and durable under adequate infra-red heat in 15 to 20 minutes, and can be handled for assembly 30 minutes later.

Both the smooth finish and wrinkle Raydur enamels are available in black, white, and most colors for use on most metals and on moulded Bakelite. Their color retention and adhesion are good.

Raydur Baking Enamels are supplied in high gloss and semi-gloss smooth finishes; Raydur Duart Wrinkle Enamels in grades to form fine, medium, and coarse wrinkle patterns.

Send for full information on these latest products of M&W research.

Maas and Waldstein Co. Newark, N. J.

Branch Offices and Warehouses . . . 1658 Carroll Ave., Chicago . . . 1238 W. Pico Blvd., Los Angeles

LACQUERS PIONEERS IN PROTECTION ENAMELS

tion provided he is on his toes and gets and gives his factory the proper information. If he isn't the type that can do that, he isn't the type that can sell and service a customer properly and satisfactorily, no matter what the value of the product he has to offer.

Our sales program calls for ever greater use of the technically trained salesman. He doesn't have to talk technicalities to the paint foreman, but he can talk that language when it is desirable and valuable for him to do so. Furthermore, and of equal importance, as noted above, this type of salesman is well qualified to make the kind of an investigation and submit the kind of report which we consider advantageous to the benefits of all concerned.—C. H. HAMPTON, Mgr., Industrial Sales Div., The Lowe Bros. Co.

In regard to that letter the EDITOR quoted on page 75, of August issue, I disagree with the writer and I believe that most other foremen will also disagree with him. I don't know the writer's capacity, but it might surprise him to learn that a first class foreman must know the formulating of all the materials he uses, or I am sure he would soon find himself in serious trouble. If a finisher followed the practice of not questioning every new material that came in, and only experimented, I doubt very much if he would get anything else done.—FINISHING FOREMAN.

Fluorescent paints glow brightly and colorful in darkness only when activated by near ultraviolet light.

Cleaning, Painting Over Down-Draft Grilles

UNIQUE facilities which eliminate the worst features of the work of grinding and sanding castings—always considered one of the most disagreeable jobs in metal-working plants—and which make it possible to perform this work within a few feet of precision machining operations, have just been installed in the new addition to The Monarch Machine Tool Co. plant at Sidney, Ohio.

By means of the same type of down-draft ventilating system that the company recently in-

Sanding and grinding castings in Monarch Machine Tool Co.'s new plant addition. Down-draft ventilation through the grille-topped tables makes this operation clean and safe, eliminating the need for masks. The unique facilities are located in the corner of the machining building; no walls or partitions of any kind are required to separate this department from precision machining operations.

Another Finishing Room

Planned Engineered Conveyorized

tion of rubbing and ishing line with over- transportation con- to handle finished ture from finishing to packing dept.

View showing wide assortment of fur- niture handled on overhead finishing room conveyor.

by PALMER-BEE at plant of Heywood-Wakefield Company, Gardner, Mass.

The above installation is typical of the many furniture plants equipped with Palmer-Bee conveyors. At no cost to you one of our skilled engineers will analyze your plant and production, submit a plan and program through your finishing room — warehouse — cabinet room — machine room. Avail yourself of this service.

PALMER-BEE CO., DETROIT, MICH.

stalled for the spray-painting of completed lathes, castings are now being ground, spray-painted and sanded at one end of the machining building, without any walls or partitions of any kind to separate the departments.

There are 14 working stations in the installation — eleven for small castings, three for lathe beds and other large castings. The top of each unit is a large grating, through which air is exhausted to quickly pull away the mist of rust, sand and other fine particles. With the gratings for the large castings located on the floor and those for the small castings located at 16, 20 or 32-in. levels, the men are never in a position to inhale dust or fumes, nor do they ever have to work in a bent-over position.

The units in the grinding section include a 2-wheel snagging grinder, a surface grinder for castings up to 4-ft. square, and four grinding bucks, the largest

Grinding-bucks in new castings-cleaning department. Fine dust particles, which ordinarily would fill the air, are now exhausted through the grilles on which the work is placed. The circular guards are to catch and direct into the grilles the heavy abrasive particles which ordinarily would fly out onto the floor.

Have You Tried

QUALASOLE

The Modern French Polish

Has shellac beauty—
lacquer hardness—
varnish durability

QUALATONE PRODUCTS, INC.
21 Gay St., New York City

Here's a NEW and UNUSUAL Flat Varnish

—it's an *all gum* flat containing no stearates or other flattening agents. Is exceptionally clear, waterproof and liquor proof . . . .and it is *inexpensive.*

TRY THIS IMMERSION TEST

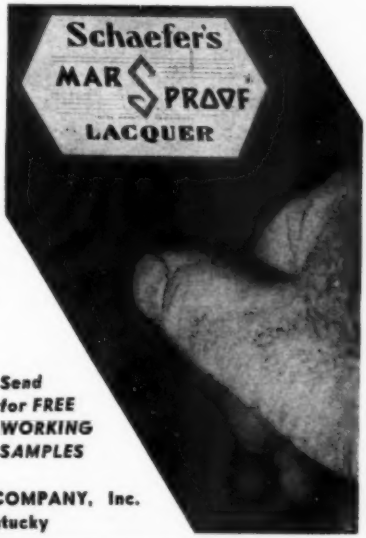
Panels coated with *Perfection Flat Varnish* can be immersed in water for 30 days without turning white or showing any other ill effects. Write us and we'll send panels and samples — and we'll also send a panel in water for 30-day immersion test.

PERFECTION PAINT & COLOR COMPANY, INDIANAPOLIS, INDIANA

HERE it is!

cannot be marred or scratched

A lacquer finish that cannot be marred or scratched with the thumbnail, or other destructive agencies—a much tougher piece of goods than the ordinary lacquers. It produces a splendid transparent finish of full depth on maple, walnut, gum, mahogany and other cabinet woods . . . It is made in either the Clear Gloss Rubbing or the Satin Finish. Mar Proof Lacquer Sealer is recommended for the first coat.



Send for FREE WORKING SAMPLES

THE SCHAEFER VARNISH COMPANY, Inc.
Louisville — — Kentucky

SEA-LAC

COLOR SELLS . . . . more so when combined with *additional advantages* offered by SEA-LAC "77"

Based on extensive research and backed by practical experience, it is a ***finish within a finish*** . . . . flexible enough to meet requirements of more surface coatings than anything we know of.

- as a clear surface coating
- as a medium for bronzing
- or in sparkling colors of Transparent, Translucent, or Opaque; it has the ability to stand the punishment of time and remain least affected by handling.

Rapid Baking Schedules

FOR INFORMATION AND SAMPLES WRITE

DURALAC CHEMICAL CORPORATION
NEWARK. N. J.

4-ft. in diameter. In order to catch all grinding particles in the bucks these units are protected by sheet-metal guards.

In the small-castings paint department are two 4 x 8-ft. grilles. Spray paint particles pulled down into these grilles are carried away by means of water solution and eliminator packs located underground. The equipment in the sanding department includes four grilles each 5-ft. square. Here a water vapor is used in connection with the blower fan to eliminate the sand particles in the form of sludge.

To facilitate handling of large castings, the three floor stations are connected by means of a 54-inch track. Riding on a dolly, the heavy castings are moved from the receiving department through the grinding, painting and sanding operations to the machining department, without further lifting.

All the units are exhausted through the roof. The two painting outlets are carried 30-ft. into the air to eliminate any possibility of the fumes re-entering the plant through the monitor windows. The total amount of air removed is 50,000-cu.ft. per minute, at an average surface velocity of 200-ft. per minute.

The blower equipment consists of five "rotoclone" type fans located in a small room to the west. The paint supply comes from 10-gallon tanks under pressure, located just beyond the blower room. There are separate lines for crankcase white, primer, filler, sealer and color lacquer for finishing. The piping system for the entire installation, including exhaust, compressed air and paint lines, is entirely under the floor. —H. & K.

Blanchit
U. S. PAT. No. 2,134,898
Also Foreign Patents
WOOD DECOLORIZER
FOR
MODERNIZING
L. R. van ALLEN COMPANY
Patent Licensee CHICAGO

Sterling Announces New Name and New Address

The Sterling Products Co. of Detroit and Los Angeles, is now the Sterling Tool Products Co. of 363 E. Ohio St., Chicago, Ill., as of September 1st, 1940. Mr. C. B. Johnson, formerly sales manager of Sterling Products, has been made vice-president and General Manager of the new corporation.

—BLACK—
BAKING JAPAN . . BAKING ENAMEL
TIRE PAINT . . CORE BLACK
62 Years Experience in Blacks
THE AKRON PAINT & VARNISH CO.
AKRON, OHIO

In announcing the change, Mr. Johnson said:

"Heretofore our factory and administrative offices have been located at Los Angeles, and our general sales and service office at Detroit. The new arrangement will bring both units together and will greatly facilitate our service and production operations. There have been no material changes in our field sales organization, but the greatly expanded manufacturing facilities and closer coordination of sales and administration will bring us into wider and better contact with our customers' needs."

The new organization will continue manufacturing and selling the popular Sterling Speed-Bloc pneumatic sander and the Sterling Gyro electric sander.

Drying Lamp Information

An interesting and informative talk about "The Use of Radiant Energy for the Application of Heat", was presented before the 34th Annual Convention of the Illuminating Engineering Society, Spring Lake, N. J., Sept. 9-12, 1940, by Mr. Howard Haynes of General Electric Co.

Copies of this talk, with illustrations, charts and tabular data, can be obtained by writing the General Electric Co., Lamp Division, Nela Park, Engineering Dept., Cleveland.

The M & E Aero-Dehydrator

will absolutely cure any troubles caused by moisture or oil in YOUR air lines. Write our engineering dept.

M & E Manufacturing Company
Indianapolis, Ind.

SUNBRITE

BRONZE POWDERS

BRONZE PASTES
(Patent Applied For)

ALUMINUM POWDERS
ALUMINUM PASTES
ALUMINUM PAINTS

ALL GRADES AND COLORS

Request sample and Color Card today.

The Mitchell-Mayer Co.
St. Louis, Mo.

SAVINGS up to 25%
of your finishing cost with a
G. M. No. 5 Spray Gun

Patented Nozzle Reduces 25% Mist and Saves Paint

Better atomization, greater speed, G. M. Gun lays material more uniformly on object. Excess mist eliminated; paint saved. Patented nozzle with combination of external and internal atomization gives double breakage of material. From 3/8-in. to full wet 14-in. fan spray. Very moderate price. For details write Dept. L.

G. M. Manufacturing Co.
Engineers and Manufacturers of Complete Spraying Equipment
216 N. Clinton St. Chicago, Ill.

Industrial FINISHING

Distributed to Executives and Foremen Finishers in industrial plants where finishing coats are applied with finishing equipment.

Published the 18th of each month by PRACTICAL PUBLICATIONS, Inc.
222 East Ohio St., Indianapolis, Ind.
Telephone .....Riley 6771

•

President.....A. T. Gaumer
Vice Pres. and Editor.....W. H. Rohr
Treasurer and Adv.-Mgr.....E. A. Dosch
Secretary.....R. E. Suits

•

Subscription Rates per Year
U. S. and Possessions.....$2.00
Canada and Foreign Countries.....$3.00

EDITORIAL

China Wood Oil Replaced to Advantage

A few years ago China wood oil was considered indispensable for use in several important finishing materials. Later, war and an upset of economic conditions in the Far East began to place a threat upon the future supply of this valuable oil. Accordingly, paint chemists in this country began to seek something to replace tung oil in finishing materials—and they were successful.

Now, many other oils such as dehydrated castor, linseed, perilla, soya or oiticica, provide the finishing materials in which they are used with superior resistance to moisture and alkalies, and they also offer marked economies in manufacture. They have other merits that are well understood by paint chemists.

As a result, the tens of thousands of users of finishing materials in which China wood oil was an essential ingredient, have been assured an unlimited supply of paints and synthetics which have characteristics and qualities equal to and in some cases superior to those they formerly purchased.

Industrial Modernization Again on the March

Modernization, revitalization and expansion of industry is going forward at increasing speed. The caution and hesitation that characterized management's programs in so many establishments during the past decade have suddenly been replaced with an eagerness to go forward and do it quickly. All industrial activity has increased substantially. More and more different kinds of manufactured goods are in demand. Orders are being booked and promised to manufacturers who are in position to get their plants tooled up for volume production and early deliveries.

Production men are on the spot. A few have actually lost their jobs, while others have been demoted, because they were not quick enough to sense what was coming—not alert to realize that the long familiar "go slow" sign had been abruptly changed to "go fast". They had failed to dream and plan what they would

NO MORE WORRY

"We're Using Yarnall Wrinkle Finish Now!"

"Since using Yarnall Wrinkle Finish we don't have to worry about uniformity in texture of wrinkle, of color or viscosity." That's what many industrial manufacturers are saying about this dependable product.

YARNALL
THE SHIELD OF PROTECTION

YARNALL
PAINT COMPANY
Industrial Division
Philadelphia · · Penna.

do to improve, re-equip or enlarge their respective factories and fill them with efficient workmen—if conditions ever changed. Their lack of vision and courage cost them dearly—and it cost their companies too.

Modern production equipment of practically all kinds is now in demand. Along with this procession of industrial improvement, finishing departments and related activities are coming in for their share of attention. The finish on products gets more consideration today than ever before. More mechanical and automatic equipment is being planned for conditioning surfaces, applying and drying coatings, and for rubbing or polishing these coatings. More special tools and devices are needed for the application and various decorative effects.

More finishing departments are being conveyorized and more are going in for controlled force-drying and oven drying. Air-conditioning has come into the picture more extensively, thereby making finishing operations and results completely independent of outside weather conditions. Some of the newly developed finishing materials call for a specific type of equipment for their application and "curing".

This course of action vitally effects everyone who is connected in any way with industrial finishing operations. It means more work, more investigating, more testing, more thinking, and more intelligent planning. It means giving more attention to what other manufacturers have to offer—reading their advertisements, welcoming their representatives, and calling on them when difficulties and problems arise. It means a more careful reading of everything that appears in this publication, which is edited specifically to suggest, recommend and portray what is of value to men responsible for industrial finishing results.

MARTIN'S

PRODUCTION PROVEN

— FINISHES —

Finishing systems scientifically developed to meet your specific conditions will (1) Cut finishing cost per unit (2) Save time by reducing the number of finishing operations.

MARTIN VARNISH CO.
900 W. 49TH PLACE, CHICAGO, ILL.

ADD SPARKLE

to Wrinkle Finishes

Clean off the dull oxides left by the oven and reveal the full, brilliant, even-tone luster you want in your WRINKLE FINISHES with one wipe of a rag saturated with

Doster Wrinkle Cleaner

Makes every job "look like a million." Dries to touch in 10 to 30 minutes.

ORDER A CAN TODAY

Pts., 85c; Qts., $1.50; Gals., $5.00

DOSTER & CO. 4835 RICE ST. CHICAGO

Let's Strive to Prevent Fires; Save Property

The United States will observe Fire Prevention Week this year during the week of October 6-12. Industry, as a whole, has contributed more to the success of these annual observances than any other class in our national economy and it has benefited accordingly.

Under present industrial conditions, with production on the

upward curve, there is a need for tightening our defenses against fire. The fire record shows that the incidence of fire increases as production increases. Our national defense requires special precautions to guard against the arsonist and the saboteur. The latest estimation of annual fire losses, classified as to occupancy, shows that in manufacturing establishments there were 26,700 fires, with a loss of $50,630,000. Total number of fires, all classes of occupancy, 660,000; total loss, $265,000,000.

Then there is the loss of lives as a result of fires. During this last year, it is estimated that at least 10,000 lives have been lost as a result of fires. The largest percentage of these persons died in or about their own homes when their clothing became ignited from burning rubbish, bonfires, open fireplaces, burning matches or cigarettes. Many died as a result of smoking in bed. The careless use of flammable liquids such as cleaning with gasoline and kindling fires with kerosene took large tolls as usual. Hundreds died when they became entrapped by fire in their homes.

Practical and authoritative information about manufacturing hazards and precautions to take against fire starting in plants where paints, lacquers, varnishes and other finishing materials are used, can be obtained in convenient booklet form from the National Fire Protection Association, 60 Batterymarch St., Boston, Mass. This association is a non-profit technical and educational organization, operating "to promote the science and improve the methods of fire protection and prevention; to obtain and circulate information on these subjects and to secure the cooperation of its members in establishing proper safeguards against loss of life and property by fire."

Summer Furniture Market at Los Angeles, Satisfactory

The Los Angeles Summer Market came well up to expectations. Registration topped June, 1939, by nearly 30% and was only 10%

INFRA-RED RAY DRYING
NALCO DRITHERM CARBON LAMPS
Cut drying costs . . Save time . . Use minimum space . . Get uniform results. Write for information and prices today.
North American Elec. Lamp Co.
1030 Tyler Street St. Louis, Mo.

A Good Sealer and Undercoater Should Make a Product
LOOK BETTER • LAST LONGER • SELL QUICKER
Shellac Does All Three—and Does Them Best!
SHELLAC INFORMATION BUREAU
Write for specific details to — 70 Pine Street, New York City

Kindly mention INDUSTRIAL FINISHING when writing advertisers

PRODUCTION

CHROMATE

PRIMER

For streamline speed

- Air dries in 20 min.—Can be force-dried or baked.
- Forms perfect bond for lacquers or synthetics—no lifting.
- Excellent adhesion to all metals and die cast parts.
- Resists moisture penetration and salt spray tests.
- Supplied in different colors to suit your needs.

Will Finish Your Product or Supply Sample for Your Tests.

H. V. **WALKER** CO.

MODERN PRODUCTION FINISHES

Elizabeth, New Jersey

under last January's record Market. The tone was healthy and optimistic, reflecting better business. Buying was not speculative, but for immediate requirements and new items, and *the manufacturers with revamped lines and new styles did extremely well.* Manufacturers in every price bracket, but the highest, reported a demand for the high end of their lines.

A good business omen was the lack of unusual and startling deviations in styling.

Most striking trend was the influence of FHA on all styles and brackets. This influence was most marked in the fine line modern groups in the lower brackets. Designers directed their efforts towards young couples, owners of new FHA homes, with a liking for modern and rather thin purses. There were several of these groups throughout the Market—simple, functional modern, giving the ultimate in style at the price levels of commercial modern.

In other styles and brackets, too, manufacturers showed they were aware that modern homes are short on wall space, that many pieces must serve double duty, and that there is a growing public with limited means, but a taste for smart furniture.

Though the economical modern groups were of necessity exceedingly plain, there was a noticeable tendency to dress up fine line modern. More decorative detail was added. Some case goods had serpentine fronts and similar detail. The hardware was substantial and *finishes tended to the darker, golden harvest shades.*

Early California ran away with the style picture. Not only a larger volume was shown this

Announcing **INFRA-RED'S LATEST ACHIEVEMENT . . .**

EVENRAY • **The Leading Daylight Fluorescent**

Exactly as developed, tested, and installed for one of the largest motor car manufacturers. Write today for booklet describing this unique unit, and let "Evenray" score again.

INFRA-RED RAY DEVICES, INC. • 9325 E. Forest Ave. • Detroit, Mich.

season, but the style range was broadened. Almost every imaginable version was in evidence.

Letters from I. F. Readers

(Continued from page 10)

have enjoyed reading same with profit and interest. In addition, we appreciate the privilege of being able to refer to you occasionally with a specific problem . . . I. Mfg. Co. (Lamp Shades and Novelties).

Decalcomania

We note with interest the article in your July issue on "Graining with Decalcomanias", (pages 19 and 20) and will appreciate complete information on the manufacturer of this product.—T. Mfg. Co.

The manufacturer's full-page advertisement (The Meyercord Co.) appears on page 37 of that same issue. —Ed.

Fireproof Lacquer

A year or so ago we read, in one of the issues of INDUSTRIAL FINISHING, an article on a fireproof lacquer. We wish you would inform us, if possible, who makes such a material and any other information that you may have available.—P. T. Co.

We are sending you the names and addresses of a few manufacturers who have a product that produces a fire-resistant finish—claimed to be burn-proof.—Ed.

Roller-Coat Machines

We manufacture rubber-coated, lacquer-finished imitation leather, and we would like to get the names and addresses of companies manufacturing roller-coating devices, which might be suitable for applying lacquer to our rubber-base upholstery.—S. R. Co.

Burning-in Knives; Wrinkle Finish

Please send us the names and addresses of manufacturers of burning-in irons. Also, send the address of paint manufacturers of wrinkle finishes in all different shades.—H. Novelty & Toy Co.

Laboratory Designed
Plant Proven

Ken - Wood Bleach

Eliminates Luck • So When You Buy — Specify

Ken - Wood Brands

Holland, Michigan

AIR COMPRESSOR SPECIAL

One 12" x 10" CHICAGO-PNEUMATIC horizontal, water-cooled compressor with plate valves, capacity 350 c.f.m.—100 lbs. working pressure. Splendid condition — less than one half original cost.

We handle both new and rebuilt spray equipment of all makes. Will take in trade good used equipment you are not using on new or rebuilt equipment you may need.

M. & E. MANUFACTURING CO.
720 S. Meridian St., Indianapolis, Ind.
Established 1913

SPECIAL GIFT OFFER!

$2.00 ELECTRIC KNIFE WITH GROSS OF STICK SHELLAC

Campbell Burn-In Knife
Specify 110 or 220-Volt

You'll find Campbell's Stick Shellac the best product ever invented for filling holes, dents, scratches or other imperfections in wood, metal, marble. . . . Comes in a wide variety of colors.

Stick shellac must be applied with a hot knife or spatula. For best results an electric knife is recommended. As a special gift offer to readers of Industrial Finishing, we will send a Campbell's Electric Knife (regular $2.00 cost) with every 12 dozen or more order for Stick Shellac.

FREE—Send today for color card made up from actual samples of Campbell's Stick Shellac. Also new descriptive price list, featuring lacquers, stains, bleaches, etc.

YOU CAN COUNT ON CAMPBELL

M. C. CAMPBELL Company

"Fine Finish Leadership for 25 Years"

706 EAST 19TH ST. KANSAS CITY, MO.

FurnitureFinishing

A thoroughly practical book in five parts.

I. Period Furniture and modern styles.
II. Furniture Decoration (Antique Shading, Glazing, etc.)
III. Furniture Finishing (Woods, Finishing Room Tools, Equipment, Materials, etc.)
IV. Furniture Patching.
V. Special Processes (Lamp Shades and Bases, Picture Frames, Japanning. Mirror Resilvering, etc.)

543 Pages—Fully Illustrated

New Edition—$4.00
Remittance with order

INDUSTRIAL FINISHING
222 E. Ohio St. Indianapolis, Ind.

Classified Advertising

POSITION DESIRED.

Have had 20 years' experience as finisher and two years as salesman of finishing materials. Would accept either position anywhere. Address IF-811, care "Industrial Finishing.

PAINT CHEMIST AVAILABLE.

Am 35-yrs. old; college graduate in chemistry; have had 5-yrs. experience in paint control and application with formaldehyde resins, lacquers, japans, glyptals, modified ureas, solvents and thinners. Also, in plating, porcelain, ferrous and non-ferrous metals, etc. Have been chief chemist of a laboratory for a refrigeration manufacturer during this time. Am a recognized authority on paint reclaim and have had several papers published on different subjects. Address IF-814, Industrial Finishing.

AN OHIO MANUFACTURER

Specializing in Varnishes, Blacks and Aluminum Finishes, Air Drying and Baking, will consider taking on additional accounts of salesmen who are seeking a reliable source of supply. We offer you years of experience, laboratory assistance, uniform quality, protection of accounts and an honest share of the profits. Write in confidence. Address IF-815, care Industrial Finishing.

PAINT TECHNICIAN.

AAA1 Paint manufacturer located in midwest is seeking technical man who has had broad experience in industrial enamels. You must know how to formulate white synthetics and know the use of Alkyd and U. F. resins. This post offers opportunity for advancement with a growing company and a capable man who is ambitious will find it worth investigating. State age, experience, and previous salary. Address IF-816, care Industrial Finishing.

SCREEN PROCESS SERVICE.

Accurately registering Silk Screens made to order; Decorative designing suited to the process, for all surfaces; Instruction Units comprising everything you need; Shop Installation; Screen Process production—a few or many pieces; Screen Process supplies. For $1.00, we will send a copy of our book "Silk Screen Process Printing", a fully illustrated and clearly defined textbook. Tell us your specific needs and we will make recommendations. SCREEN PROCESS COMPANY, 101 South Capitol ave., Indianapolis, Ind.

NEW YORK STATE SALESMAN.

Nationally - known manufacturer, specializing in complete line of industrial finishes—oil, synthetic, and lacquer types—offers a real opportunity to a qualified man now selling industrial trade in the Syracuse, Rochester, Albany district. Write in complete confidence with details of age, experience, sales record, income, etc., to IF-809, care Industrial Finishing.

INDUSTRIAL SALESMAN WANTED

To represent in Indiana, a nationally-known paint, varnish and lacquer manufacturing company, enjoying an excellent industrial business. Send complete business history and state compensation wanted. Address IF-810, care Industrial Finishing.

WANTED—CHEMIST.

Industrial Finishes Manufacturer located in metropolitan New York desires services of chemist with research, formulation, production and control experience in synthetic enamels. Our own employes have been notified of this ad. Please fully state experience. Address IF-813, care Industrial Finishing.

MICHIGAN STATE SALESMAN.

Qualified man now selling industrial trade in Michigan is sought by manufacturer specializing in all types of finishes for furniture, metal, and miscellaneous industries. If you want to be connected with a real house, write full details of age, experience, income, etc., to IF-812, care Industrial Finishing.

INDUSTRIAL CHEMISTRY

Courses by mail; class in Phila. Paint resin and chemical analysis. INDUSTRIAL CONSULTANTS, P. O. Box 7515, Phila., Pa.

FOR SALE.

STERLING BLOCK SANDER—$50.
STANLEY ROUTER with stand—$25.

Only slightly used, for less than 1-3 original price. Sander is complete with all accessories, air regulator, etc. GOLDENTONE RADIO CO., 15123 Warren ave., Dearborn, Mich.

FOR SALE.

One chain and bar type conveyor oven equipped with electric heating and controls; temperature range 100° to 700°; connected heating load 30KW; length of bars for hanging materials 66-in.; clearance between bars 28-in. Can be equipped for gas or oil if desired. Equipment assembled for inspection — apply THE CONTAINER COMPANY, Van Wert, Ohio.

Index to Advertisers

Advance Paint Co.....Third Cover
Akron Paint & Varnish Co.....70
American Electrotype Co.....71

Berry Brothers 61
Binks Mfg. Co.....36-37

Campbell Co., M. L.....78
Classified Advertising 78
Claremont Waste Mfg. Co..... 9

Day & Co., James B.....51
Despatch Oven Co.....47
Detroit Rex Products Co...Back Cover
Detroit Surface Machine Co..... 1
DeVilbiss Co., The.....5
Dolan & Company, V. J.....7
Doster & Co.....74
du Pont deNemours & Co., E. I. 40-41
Duralac Chemical Corp.....69

Egyptian Lacquer Mfg. Co.....42

G. M. Manufacturing Co.....71
Glidden Co., The.....59

Industrial Tape Corp.....63
Infra-Red Ray Devices, Inc.....77

Koch Sons, Inc., George.....39

Lilly Varnish Co.....Front Cover

M. & E. Mfg. Co.....71-77
Maas & Waldstein Co.....65
Mahon Co., The R. C.....35
Martin Varnish Co.....74
Milburn Co., The Alexander..... 8
Minnesota Mining & Mfg. Co.....53
Mitchell-Mayer Co. 71

North American Elec. Lamp Co.....75

O'Meara, Kenneth 77

Paasche Airbrush Co.....80
Palmer-Bee Co. 67
Patterson-Sargent Co. 45
Perfection Paint & Color Co.....68

Qualatone Products, Inc.....68

Randolph Finishing Products Co.....10
Rockford Varnish Co.....49
Roxalin Flexible Lacquer Co. .....Second Cover

Schaefer Varnish Co.....69
Shellac Information Bureau.....75
Southern Varnish Corp.....33
Stanley Chemical Co.....55
Stille-Young Corporation 11

Thresher Varnish Co.....67

United Lacquer Mfg. Co..... 8

Van Allen Co., L. R.....70
Varnish Products Co..... 6

Walker Co., H. V.....76
Watson-Standard Co. 57

Yarnall Paint Co.....73

Zapon Division—Atlas Powder Co... 2
Zapon-Brevolite Division — Atlas Powder Co. 2

"AMERICA'S FINEST AND FASTEST"

New Type CUB

Paasche AIRBRUSH

SPEEDS PRODUCTION! ASSURES QUALITY!
ELIMINATES REJECTS!

Save valuable production time — plug the leaks in your finishing room — install this typ CUB Airbrush with calibrated control and do away with defective spray patterns, orang peel, streaks, runs and sags, air and fluid leaks, excessive mist. Difficult finishing become routine and slow production finishing a thing of the past.

NEW FEATURES:

1. New calibrated control of fan spray.
2. New knurled fluid lock control.
3. New larger easy pull trigger.
4. New easy-grip handle.
5. New Larger Aircap — easily removed — quickest to clean.
6. Lighter, easiest to handle.
7. Shorter fluid passage increases coati speed, and prevents clogging.
8. Only two parts to keep tightened.
9. Shorter, stronger needle with most effe tive cone shaped point prevents cloggin

Operating Data: Universal—atomizes all finishing materials at highest speed under perfe control — provides wider, wetter spray. Convertible into larger or smaller sizes. May used with pressure tank, overhead bucket, gravity or syphon cup. ***Adjustable for a airpressure or any airconsumption.***

Send Now for Bulletin and Prices. Use the reply card.
No obligation.

Profit with Paasche Air

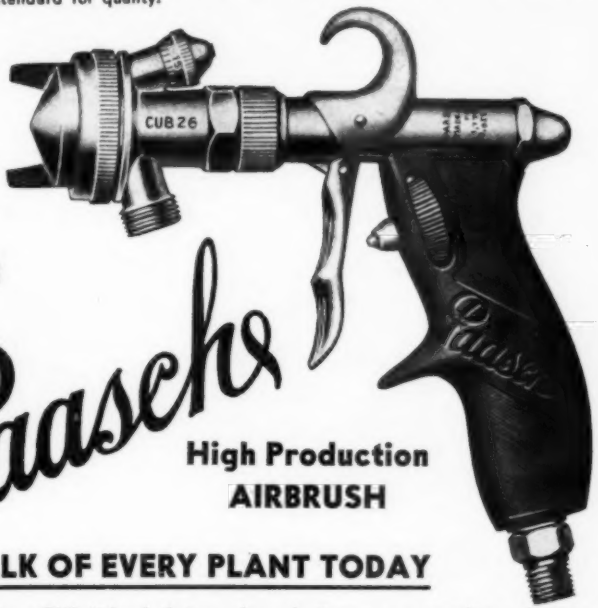
Paasche Airbrush Co

1917 DIVERSEY PARKWA CHICAGO, ILLINOIS

In Canada — A. R. Williams Machinery Co., Ltd., Toronto
Omer De Serres, Ltd., Montreal

IRST AIRBRUSH IN OUR PLANT WAS A PAASCHE"—*Remember*—years, years back w everybody gathered round to see it atomize and apply materials faster and better. Even on it was the fastest, lightest and easiest to operate and clean. Ever since, Paasche has en the highest standard for quality.

—and now this **NEW** **ype CUB**



Paasche

High Production AIRBRUSH

S THE TALK OF EVERY PLANT TODAY

nd for this new type CUB Airbrush that speeds production — assures quality — eliminates jects. Learn why and how this latest type Paasche Airbrush with calibrated control does ay with defective spray patterns, orange peel, streaks, runs and sags, air and fluid leaks, cessive mist.

NEW FEATURES THAT PLUG THE LEAKS IN YOUR FINISHING ROOM

1. New calibrated control of fan spray.
2. New knurled fluid lock control.
3. New larger easy pull trigger.
4. New easy-grip handle.
5. New Larger Aircap — easily removed — quickest to clean.
6. Lighter, easiest to handle.
7. Shorter fluid passage increases coating speed, and prevents clogging.
8. Only two parts to keep tightened.
9. Shorter, stronger needle with most effective cone shaped point prevents clogging.

erating Data: Universal—atomizes all finishing materials at highest speed under perfect ntrol — provides wider, wetter spray. Convertible into larger or smaller sizes. May be d with pressure tank, overhead bucket, gravity or syphon cup. ***Adjustable for any pressure or any airconsumption.***

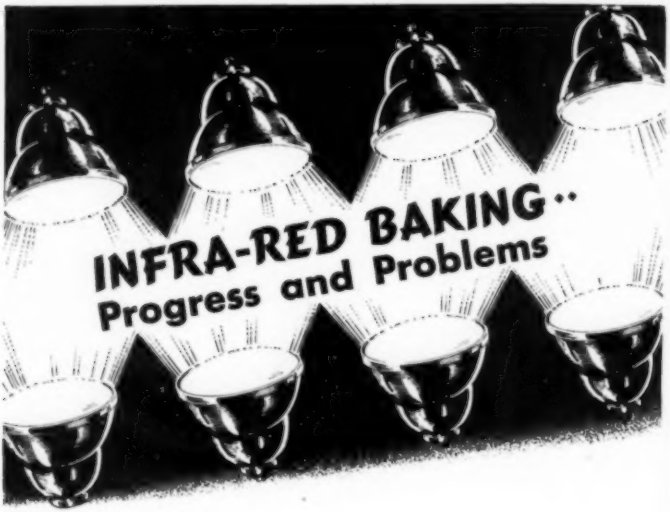
Use Reply Card for Free Bulletin.

Profit with Paasche Air

Paasche Airbrush Co.

1917 DIVERSEY PARKWAY
CHICAGO, ILLINOIS

In Canada — A. R. Williams Machinery Co., Ltd., Toronto
Omer De Serres, Ltd., Montreal



For several years Zapon has carried on experimental work in its laboratories with infra-red lamps. A close study was made, too, of the original development of this method of baking finishes in the automobile industry.

It is important to remember that enthusiasm for infra-red's quick baking schedules must not cause us to overlook many other factors. We have found that some finishes which bake out satisfactorily in conventional ovens are not suitable for infra-red baking. Color of the finish to be applied, type of surface and shape of the object, production schedule and other considerations influence the results obtained. No single material or method of set-up will work in all cases.

Users of industrial finishes interested in the infra-red process should work closely with the finish manufacturer as well as the maker of equipment. Zapon is fully competent to work with you on such a program.

EASTERN SALES:
ZAPON DIVISION
ATLAS POWDER COMPANY
Stamford, Conn.

ZAPON

WESTERN SALES:
ZAPON-BREVOLITE DIVISION
ATLAS POWDER COMPANY
North Chicago, Ill.

INDUSTRIAL FINISHES